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ABSTRACT

The report contains proceedings from a conference which assessed precollege needs in economic education. The Conference Overview (Part I) and Recommendations of Conference Participants (end of Part VI) were published previously as a separate document (ED 130 953). The bulk of this report includes the texts of nine presentations and responses by economic educators, three teachers' reflections on the conference, and a summary. Topics of the presentations included the state of economic literacy, economic education needs for ethnic minorities, male-female differences in precollege economic education, needed materials, current and future needs for teacher training, evaluation in economic education, and diffusion and implementation of economic education programs. The summary reviews the relationship between economics and social studies, which is the class in which most students learn economics. There is a need for educators to translate new economic theories into forms understandable to children. Economic illiteracy may be a significant element in increasing general illiteracy. Research is needed in areas of teacher education, learning models, and role of student reading levels and IQ in economic literacy. More material for middle school grades should be developed, accompanied by greater integration among materials for all levels. (Author/AV)

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Perspectives On Economic Education

Donald R. Wentworth
W. Lee Hansen
Sharryl H. Hawke

Proceedings from the National Conference on Needed Research and Development in Precollege Economic Education held February 12-14, 1976 in New Orleans, Louisiana and funded by the National Science Foundation.

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PREFACE

This book is a record of the proceedings of the National Conference on Needed Research and Development in Precollege Economic Education conducted February 12-14, 1976, in New Orleans, Louisiana. The conference was funded by a grant from the National Science Foundation and endorsed by the American Economics Association (AEA) Committee on Economic Education, the Association for Supervision and Curriculum Development (ASCD), the Joint Council on Economic Education (JCEE), the National Council for the Social Studies (NCSS), and the Social Science Education Consortium (SSEC).

We would like to express our appreciation to all the organizations and individuals who helped make the conference possible. This list includes the organizations which endorsed the conference, the advisory committee which guided our work, the participants who made the conference a stimulating intellectual experience, and the National Science Foundation for granting the funds needed to conduct the conference and publish the proceedings.

Special acknowledgement is due to selected individuals who helped with different phases of this project. Dr. Charles Fishbaugh, Professor of Economics at the University of New Orleans, was an excellent conference coordinator. Kathy Poole, Administrative Assistant, Center for Economic Education, Pacific Lutheran University, assumed a large responsibility in preparing the grant request, making preparations for the conference, and producing the conference proceedings. Cindy Ellis and Cindy Winn, SSEC secretaries, provided the secretarial skill and sustained patience necessary to see the proceedings through production. Without the services, professional skill, and judgment of these people, it is unlikely that the conference and the publications would have become a reality. We deeply appreciate their help.

Finally, as editors, we wish to acknowledge that although many people helped us with this project, any errors are our sole responsibility. In like manner, it should be understood that the views and professional judgments expressed in this publication are those of the authors and are not the official position of the editors or any of the endorsing organizations.

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Part I Introduction

Conference Overview—*Donald R. Wentworth* and *W. Lee Hansen*

Conference Overview

Donald R. Wentworth
W. Lee Hansen

BACKGROUND AND PURPOSES

During the 1970s the attention of the American people and their leaders has focused sharply on problems of the economy. Rarely in recent history have people at all socioeconomic levels witnessed the dramatic influence of economic actions on both personal life-styles and national objectives. The economy has suffered from the deepest recession in almost 40 years, experienced the sharpest inflationary surge in memory, undergone its only peacetime experience with wage and price controls, been subjected to the shock of the energy crisis, and left citizens questioning the effectiveness of government in solving many social and economic problems. For American citizens trying to understand what is happening in the economy and to evaluate the varied proposals for remedying economic problems, the period has been tramatic.

The trauma of Americans trying to deal with economic issues has been confounded by their fragmentary understanding of how the economic system works. Few people have enough knowledge of economics to give them confidence that the system can function more effectively. As a result, many people, convinced that economics is an unfathomable subject, have focused their attention on other issues.

Recent economic events have also forced economists to examine many of the discipline's basic assumptions. Long accepted conclusions about the causes of inflation, the acceptable level of unemployment, the role of economic growth, the sovereignty of the consumer, and the performance of the economic system are all being examined, challenged, and reevaluated by economists. Differing schools of thought are emerging and challenging conventional wisdoms of the recent past.

This environment of bewilderment and uncertainty indicates a need for educators and economists to assess the field of economic education. Economic educators have a major responsibility to inform the general public on economic affairs and to help people develop the confidence, knowledge, and skills to understand economic issues. Because this responsibility cannot be met with outdated knowledge, materials, and attitudes, professionals must take into account new knowledge and developments in economics, useful experiences gained from past work in economic education, and valuable insights from learning theory. If economic education is to meet the challenge of current events, the profession must reexamine its objectives and chart new directions for future work.

The 1961 Task Force Report and Its Aftermath

Most of the objectives, philosophy, and direction of the economic education movement stem from *Economic Education in the Schools*, the 1961 Task Force Report on Economic Education which was developed and disseminated through the cooperation of the Committee for Economic Development, the American Economics Association, and the Joint Council on Economic Education. The pathbreaking Task Force Report gave focus to precollege economic education by identifying a conceptual foundation for the development of curriculum materials, training programs for teachers, dissemination efforts, and evaluative research. A great flurry of activity resulted, and this has led to a substantial expansion of the role of economic education in the nation's schools. While progress has been made, much remains to be done. For a variety of reasons, only limited success can be claimed in raising the public's level of economic literacy, particularly among young people who are most likely to be touched by economic developments.

Several obstacles prevented greater success. First, no substantial investment has been made in developing and implementing economic education materials. While many teaching materials have been developed, few have had widespread implementation. Efforts to introduce more economics into the curriculum have faced stiff competition from newly developed curriculum materials in entrenched subjects and from the introduction of additional subjects into an already overcrowded curriculum.

This last competitive force proved important because curriculum development projects in economics received almost no funding by the federal government. While millions of dollars were spent to develop new curricula in anthropology, political science, sociology, and geography, little funding was committed to improving economic curriculum materials. Why economics was not funded by the National Science Foundation (the major contributor to curriculum development in the 1950s, 60s, and 70s) is not known. However, the omission left the profession without a well-funded curriculum project to serve as a model and rallying point for its educational tasks. On the other hand, mathematics, natural science, and other social science disciplines have all been tremendously influenced by the model curricula developed with National Science Foundation support.

A second obstacle has been the failure of teacher education programs to develop economic education competencies in large numbers of beginning teachers. Economic education simply has not been given the same type of emphasis more established disciplines like history and geography have enjoyed, in part because social science educators have not been knowledgeable about economics. As a result, few beginning teachers are equipped to teach economics. Economic education has been forced to try to "convert" experienced teachers to value economic instruction. This is an extremely difficult task of professional socialization.

Inadequate attention to raising the public's general level of economic understanding has been a third obstacle. We know that young people gain much of their knowledge outside school. As long as the level of general economic understanding remains low, students receive little reinforcement in the "world" for what they learn in school. The only substantial effort to correct this situation occurred in the past two years when the business community, finding itself under heavy attack, initiated an extensive educational effort. While these private efforts have great potential for increasing economic understanding, they are often viewed as biased and self-serving. Moreover, such efforts by their nature are of short duration. This suggests that we need to develop a long-range program of economic education which will reach not only younger Americans attending school but also the larger portion of the population which has already completed school.

Given these problems and circumstances, there appeared to be abundant reasons for holding a national conference to reassess the research and development needs in precollege economic education. Considerable time had passed since publication of the 1961 Task Force Report. While progress had been made in precollege economic education since then, many tasks still seemed to need attention. Appropriate circumstances existed for appraising the present usefulness of the Task Force Report and putting into perspective the results of the economic education development activities growing out of that document. More important, if successful, the conference would serve as a guide and stimulus to needed activities in the future.

These reasons led to the planning of the Conference on Needed Research and Development in Precollege Economic Education.

Conference Goals and Objectives

The primary goal of this conference was

> *. . . to provide an opportunity for professionals in economics, economic education, and education to assess the state of precollege economic education, make recommendations for needed research and development, and stimulate*

educational activities to improve economic understanding among all citizens.

This goal was met by accomplishing three objectives.

Objective 1. *To provide a forum for a group of interested professionals to share ideas about the state of precollege economic education.*

This conference drew together economists, economic educators, social scientists, and educators to share broad concerns, review work already accomplished, and generate fresh ideas and new approaches in this field. It provided an opportunity to examine parallel programs pursued by different individuals and groups and to develop strategies for ensuring greater complementarity in these efforts.

Objective 2. *To commission professional economists and educators to assess the needs and priorities in economic education and to present papers on their findings at the conference.*

To focus conference activities, a number of economists and educators were commissioned to prepare papers on a variety of topics relating to economic education. Other participants were asked to prepare written responses to these papers. The papers presented a series of recommendations to conference participants. In follow-up discussion sessions, participants studied the recommendations and assessed the priority level of each. Because the conference participants represented a unique blend of talents, fields of expertise, and levels of past involvement in economic education, their interaction helped sharpen the sense of priorities. Our summary of these recommendations and their priorities is presented later in this overview.

Objective 3. *To circulate the conference proceedings as widely as possible to the interested public.*

The conclusions and recommendations of the conference can serve as a stimulus and guide to future research and curriculum development in precollege economic education at national, state, local, and individual levels. The conclusions of the conference are being shared with people attending national and regional conferences in economics, economic education, and education. Copies of this book and a monograph, *Perspectives on Economic Education: A Report on Conference Proceedings*, are available to those expressing an interest. Professionals receiving this information will, we hope, help strengthen those areas in economic education deemed adequate by the conference participants and begin filling the identified gaps.

Guiding Questions of the Conference

The conference was designed to examine the following questions:

> What is the current state of the science of economics? What are the issues and problems that constitute the "cutting edge" of thought in the field? What are major objections to the directions and work that mainstream economists are pursuing?
>
> What does available research suggest as the most effective directions for developing future economic education programs? What additional research is needed to fill gaps in our knowledge about the effectiveness of economic education programs?
>
> How effective are current teaching materials and strategies, teacher training programs, and curriculum implementation efforts? What needs exist in all these areas?
>
> What priority activities in both research and development should be undertaken to stimulate and give new direction to economic education in the late 1970s and the 1980s?

Each of these questions was examined separately in the conference papers and following responses. The next section of this chapter presents summaries of the conference papers.

SUMMARY OF CONFERENCE PAPERS

Eight papers, each focusing on a major aspect of precollege economic education, were presented at the conference. Based on discussions during the conference, Helen Ladd was asked to prepare a paper on an additional topic and Lawrence Senesh was asked to respond to the paper by Leonid Hurwicz. Full texts of the presentors' papers, plus the prepared comments of respondents to the papers and the reactions of three precollege teachers attending the conference, appear later in this book. Summaries of the nine major papers are presented here.

The opening paper by Leonid Hurwicz reviews recent advances in economic thinking on a variety of topics—macroeconomics, empiricism versus theory, the concept of equilibriun, market imperfections, socialist systems, and comparative economic systems. He indicates how economists are wrestling with these topics and striving to advance our knowledge. Although most of the work mentioned in the paper stands at the frontier, Hurwicz believes the motivation for this work is rooted in our inability to provide satisfactory explanations for many current economic problems. He also sees evidence that the gap between economic phenomena and the development of new, improved explanations of these phenomena has narrowed greatly in recent years.

In his paper, Lee Hansen assesses the current state of economic literacy in this country. He points out that this task is hampered not only by the lack of any agreed upon definition of economic literacy but also by the absence of effective instruments to measure economic literacy. Evidence of the low level of economic literacy among the nations' citizenry as indicated by public opinion polls is summarized in the paper. Hansen believes the low level of literacy results less from the inadequacy of schools to supply economic knowledge and understanding than from the lack of public demand for effectual economic education. He explains that economic education, with its heavy emphasis on what might be called "citizenship" economics, offers individuals relatively few personal benefits even though the social (external) benefits may be substantial. The paper concludes with a brief preview of a new report on the Master Curriculum Project of the Joint Council on Economic Education which tries to pinpoint the basic economic concepts and modes of thinking which are essential in a definition of economic literacy.

George Dawson surveys the rapidly growing but still limited amount of research on economic education to determine what common findings emerge. He begins by classifying the research into three categories—fact-finding research, studies relying upon statistical analysis, and more complex studies demonstrating greater statistical rigor and/or manipulation of the learning environment. Using this classification scheme, he reviews the existing studies at the elementary and the secondary school levels. The many and diverse conclusions drawn from his comprehensive review provide a starting point for anyone interested in beginning research in this area, or learning what is known.

The special needs of particular population groups are addressed in the next two papers. James Banks offers a detailed analysis of the problems of ethnic groups, along with a demonstration of how existing economic education curricula fail to consider the special characteristics of these groups. He proposes a new approach to economic education for ethnic groups, one that emphasizes a multiethnic, interdisciplinary perspective. Such an approach offers, he believes, the only effective means of facilitating the more rapid development of ethnic groups. In Banks' view such development is necessary if ethnic groups are to fully participate in the economic and political system.

Helen Ladd addresses the needs of another important group, namely, female students who typically demonstrate less interest in and, apparently, less aptitude for economics. She reviews the very limited literature on the subject and concludes that observed differences in interest and achievement appear to be greater at the secondary than the primary level and are largely culturally determined. She offers a variety of recommendations for not only finding out more about male-female differences but also for trying to reduce, if not eliminate, these differences.

The next two papers focus on two components of effective economic education—curriculum materials and teacher training. James Davis examines the current state of curriculum materials. Reviewing previous assessments of such materials, he finds that these assessments have concentrated largely on the materials' presentation of economic content with little or no attention given to pedagogical dimensions. Davis then presents the findings of his evaluation of more recent materials, concluding that while recent materials continue to score well on economic content they remain deficient in pedagogy. He also finds that much of the printed material is not field-tested before being made available for classroom use. Davis offers an extensive list of recommendations for improving and augmenting the content of these materials and for insuring that greater attention is given to the pedagogical development of new economic education materials.

Teacher training in economic education is examined by James Mackey, Allen Glenn, and Darrell Lewis. They conclude that over the last decade significant advances have been made in determining what can and should be taught and in developing improved materials. However, they express keen disappointment over the continuing and widespread lack of adequate teacher preparation in economics and economic education. They review what is known about the effectiveness of teacher training programs and use this information as the basis for their recommendations to improve teacher training in economics.

John Soper's paper offers a review of approaches to evaluation in economic education. He argues that we must focus on the impact of economic education on student achievement and give greater attention to establishing the magnitude of these effects. After discussing the choice of evaluation instruments and research design, Soper proposes a general model of evaluation for economic educators and teachers seeking to evaluate their own programs or those of others. Soper illustrates the usefulness of this framework in evaluating a secondary school program based on the World of Work Economic Education Curriculum.

The last paper by James Becker and Gerald Marker concerns the diffusion and implementation of economic education programs. The paper begins by reviewing the difficulties of diffusing and implementing economic education materials. Although strong efforts to improve diffusion and implementation have been made, particularly by the Joint Council on Economic Education, practicing teachers continue to be largely ignorant of new developments in economic education. They conclude with a variety of suggestions for improving the diffusion-implementation process.

Considered together, the nine papers provide a comprehensive assessment of the current status of and needs for research and developmental efforts in precollege economic education. While authors of the papers were not required to assign priorities to their recommendations, some did so. The prepared responses and small group discussions which followed each paper helped to further sharpen participants' sense of priorities among the recommendations. In the next section of this overview we will discuss what we, as conference directors, believe were the most important recommendations to emerge from the conference interaction.

RESEARCH AND DEVELOPMENT NEEDS: A SUMMARY

The conference participants concluded that a number of activities should be undertaken to strengthen economic education. These activities should involve the development of needed research and evaluation instruments, survey and investigative research, curriculum development, improvement in teacher training, broadening of evaluation procedures, and strengthening of the field's implementation network. To a cynic, it would appear that conference participants suggested improvement for every aspect of the field. In fact, that assessment accurately reflects the conference recommendations. While the participants acknowledged some areas to be stronger than others, they believed all aspects of economics education could be improved.

The conclusions listed below reflect the major recommendations of the conference as summarized by the conference directors. A more comprehensive list of recommendations drawn from the papers, comments, and small group discussions is presented in Part VI of this book.

- **Recommendation 1** *An operational definition of economic literacy must be developed to provide clear objectives to economic educators. The present confusion about what an economically literate person is and how that person behaves makes it difficult to decide how best to increase citizen knowledge of economics and skill at dealing with economic issues. Without a definition of economic literacy and operational means of teaching for economic literacy, economic education will flounder.*
- **Recommendation 2** *A number of updated and new instruments are needed at all grade levels to test the level of student understanding of economics, student attitudes, and student values regarding economic decision making. Similar instruments are needed for the adult population. These instruments are required to establish a baseline of information from which to start programs and specify outcomes.*
- **Recommendation 3** *Research is needed on the use of economic education materials in precollege classes and the determinants of demand for economic education. Why people do or do not wish to learn economics must be more clearly established. This investigation should explore the socialization of teachers and citizens toward economic issues, feelings of efficacy in economic affairs, commitment to establish curriculum pro-*

grams, and self-interest attitudes. In addition, it should identify what economic information students, teachers, and the public believe is most valuable and necessary.

- **Recommendation 4** *A more extensive program of materials development in economic education should be initiated. Good programs must be improved, updated, and improved again. Inadequate and inaccurate materials should be identified and forced off the market. At the junior high school level materials complementary to other junior high social studies programs should be developed. Materials in the "neglected content areas" must be produced, and all materials must portray more accurately the roles of ethnic minorities and women in the economic system. Materials developed by one or more national curriculum development projects could reflect these desired changes and also serve as models for other, less ambitious economic education programs. These model programs should be built on the designs of the best existing programs and be flexible enough to meet local needs. All project materials should include individualized learning products, thorough evaluation components for testing effectiveness, and mechanisms to elicit student-teacher feedback on learning progress.*

- **Recommendation 5** *Teacher inservice education programs must be continued and improved. All model curriculum development programs must include teacher training components. Accompanying workshop programs require a blend of instruction in content and methodology that is based on the teacher competency model of teacher education.*

- **Recommendation 6** *The dissemination and diffusion network of economic education provided through the Joint Council on Economic Education and its Affiliated Centers and State Councils should be recognized as a major strength in the economic education field. It should be fully utilized to gather research results, stimulate development ideas, promote training skills, and disseminate new educational programs. The network established by the Joint Council should be expanded to include other interested professionals, such as members of the National Council for the Social Studies, the Association for Curriculum Development and Supervision, and the Social Science Education Consortium. Increased cooperation among these complementary organizations could help generate greater professional credibility, interest, and use of economic education materials.*

As conference directors, we felt a responsibility to identify a set of priorities from the conference recommendations and discussions. Our sense of responsibility was tempered by the realization that translating the varied recommendations from the formal papers, responses, and small group discussions into a well-organized list of priorities was no easy task.

Originally, we hoped that after each group session the participants in small group discussions would rank the recommendations presented by speakers and respondents in order of importance, feasibility, and cost. Our expectations were not fulfilled. While some sessions did produce such rankings, in most instances the discussions were far-ranging and participants found it difficult to make fully informed rankings. In a few cases discussion leaders provided their interpretation of the groups' rankings.

The conclusions and recommendations offered below are based on the information we received from discussion session leaders and our own sense of the priorities emerging from the sessions we personally attended.

THE PROCESS OF DEVELOPMENT

Our ordering of priorities flows from our perspective on the research and development process. This perspective emerged from our experiences in the conference planning, listening to the conference papers, and participating in the group discussions. It was reinforced by our reading and discussions with professionals concerned with economic education.

We see the research and development phases of curriculum building as inextricably linked, not as separate activities. Most professionals consider the research related to developmental activity as "applied" research rather than "basic" research because it considers questions which stem from the needs of the developmental process. In our view, this perspective is too restrictive. Research must serve two purposes. It must provide information that helps a project staff understand its task, but it must also yield information which advances knowledge of the education process.

Our perspective recognizes the need to combine research and development to insure that significant increases in learning result from the new materials. It also recognizes the reality that adequate funds for research will and must come through development projects. By tying research to development and by requiring combined funding for them, the effectiveness of the materials will be enhanced and our stock of new knowledge will be expanded.

Our perspective also leads us to view development as a process consisting of a series of tasks. In our judgment the following tasks constitute the complete cycle of an effective curriculum development project.

Task 1. Fact-Finding Survey Before materials development begins, a survey of potential users should be completed. This type of survey would help answer questions such as: How widespread is the felt need to emphasize economic understanding? What materials are most needed? What grade levels and topics should be included? What new components or materials would teachers, administrators, students, and parents like to see added to presently available products?

Task 2. Predevelopment Research In addition to survey information, a compilation of pertinent information from completed research studies should be undertaken. This predevelopment research should encompass both theory and empirical work that might usefully guide a development project in economic education. It should also examine the development experiences of other curriculum projects to determine which actions to emulate and which to avoid.

Task 3. Development of Measures of Economic Literacy In this task the criterion-referenced objectives to be achieved through the materials' use should be determined. The objectives should be continuing ones which carry different levels of expectation for various age and grade levels of students and/or adults.

Task 4. Creation of Curriculum Materials In creating curriculum materials, original and effective ideas for introducing and teaching key ideas, skills, and attitudes must be generated. These ideas should then be translated into usable materials and teaching strategies. All materials should be pilot-tested to determine their usability. Final revision of the materials and teaching strategies should be based on pilot-test results

Task 5. Evaluation To evaluate the effectiveness of the materials generated, accurate and controlled information for analysis should be developed. Materials can then be field-tested using the specified evaluation procedures. Data generated by the evaluation should be analyzed and results shared with the educational community. This procedure should not only provide information on that materials' effectiveness but it should also advance knowledge in the general education field.

Task 6. Diffusion Once materials have been prepared and evaluated, educational leaders and teachers should be alerted to the availability of these materials. This can be done in a variety of ways including mailed brochures, personal calls, presentations at professional meetings, and promotion by commercial publishers.

Task 7. Installation To assure the uses of these materials in the classroom, a variety of installation techniques should be developed. These techniques could include inservice training for teachers, regional workshops for educational leaders, and the designation of ''lighthouse'' school districts that other districts can model in their implementation decisions.

The linkages among the various tasks in the research-development process are identified in Figure 1. The first column of boxes indicates the process's four goals: I. Development of Objectives and Assessment Devices, II. Development of Curriculum Materials and Approaches, III. Diffusion, and IV. Installation. The next column of boxes indicates needed Preactivity, namely fact-finding surveys and predevelopment research. Only after goals have been set and preactivities completed can Developmental Activity begin, as indicated by the third column of boxes. The final column of boxes, Postactivity, summarizes the evaluation procedures that are essential in every step.

The Research-Development Process as Applied to a Curriculum Development Project

Goals of the Process	Preactivity	Developmental Activity	Postactivity
I. Development of Objectives and Assessment Devices	Fact-finding Survey Predevelopment Research Review of Educational Theory and Empirical Studies Review of Other Projects in Other Disciplines	Development of Literacy Measurement instruments	Evaluation of Instruments
II. Development of Curriculum Materials and Approaches	Fact-finding Survey Predevelopment Research Review of Educational Theory and Empirical Studies Review of Other Development Projects in Other Disciplines	Development of Materials Pilot-test Materials Revise	Evaluation of Materials' Effectiveness in Reaching Objectives
III. Diffusion	Fact-finding Survey Predevelopment Research Review of Educational Theory on Diffusion Review of Other Projects' Successes	Publicize and Inform Teachers and Educators	Evaluation of Diffusion Effort
IV. Installation	Fact-finding Survey Predevelopment Research Review of Educational Theory on Teacher Training Review of Other Projects' Experiences and Successes	Teacher Training	Evaluation of Teacher Training

OUTCOMES

Acquisition of Learning	Sharing of Knowledge
Students Acquire Competencies in Economic Literacy	Researchers, Developers, and Users Acquire New Knowledge that Advances the Field of Education and Economic Education

FIGURE 1

Consider the identification and measurement of economic literacy (the first box in the third row of Figure 1). Accomplishing this task requires the specification of economic literacy, which might be thought of not as some given level of knowledge or achievement but rather as a continuum. As students progress through the grades, they would advance along that continuum, ultimately achieving minimal and perhaps even advanced literacy. This requires deciding what is meant by economic literacy and determining what kinds of knowledge and skills must be acquired by students as they progress through the various grade levels.

Two kinds of preactivity research facilitate the specification of economic literacy. One is fact-finding surveys, a type of market analysis to determine what kinds of knowledge reflect different degrees of economic literacy. Another is predevelopment research which requires compiling what educational theorists have learned about literacy development and drawing on what researchers in other disciplines may have discovered about the construction of literacy measures. None of this activity involves basic, theoretical research in education; rather, it is background research that informs and provides a basis for further developmental efforts.

The next task involves the actual construction and testing of a measuring instrument. Designing the exact types, number, and form of the questions to be asked constitutes the major part of this task. The final step in specifying economic literacy is evaluating the effectiveness of the measuring instruments.

Determining the meaning of economic literacy and creating instruments for measuring it will provide essential information for constructing curriculum development projects. The information will also add to the general stock of knowledge in education, providing, of course, it is shared. To assure such sharing, this information should be written up in appropriate form and made available through publications, informal circulation, reference in ERIC, and deposit in various archives.

While we have used the development of economic literacy measures to illustrate the successive steps in the research-development process, the other tasks in the cycle would require a similar approach and lead to two broad outcomes. The eventual and cumulative result of the overall process is the acquisition of learning by students and the sharing of knowledge among researchers, developers, and users. The first of these provides a final outcome as it affects the ultimate beneficiaries; the second sets the stage for future efforts to affect the ultimate beneficiaries in the quest for improved economic literacy.

We believe that any development project, no matter how large or small its scale, must include all the tasks in this process. If one or more tasks are neglected, a project will have limited chances of successfully adding to student competencies in economics or in advancing knowledge that others can draw upon in doing future work. Numerous examples exist of curriculum projects in the 1960s and 1970s which spent thousands of dollars developing curriculum materials that are not now being used and which have not added appreciably to our knowledge of the education process. In most cases, the projects did not include a thoughtful research component, evaluation process, or installation strategy. These missing links in the development process created severe bottlenecks when it was found that teachers did not know about these materials, did not want them, did not have confidence in their effectiveness, or could not obtain them. When and if economic education goes through such a development process, it should avoid these bottlenecks by carefully building all of these tasks into its plans.

We also believe that all tasks in the process must be carried out, whether the budgeted levels of the projects are large or small. In some instances where project funding is limited, developers may have to undertake fact-finding and predevelopment research without compensation. In other instances, it may be possible to obtain financial support from publishers, especially for installation, diffusion, and evaluation tasks in the development process. Even when projects receive large amounts of funding, publishers should be encouraged to contribute to developmental work because they stand to profit financially from successful projects.

We strongly advocate a long-term time commitment for any project that is undertaken. Major changes in a field cannot take place if development must be completed in 12 months or less. Depending on their scope, projects should range from two and one-half years to five years duration. All project tasks should be identified on a time line before funding is received. Committed funding should support the process through its final task.

Finally, all projects should develop a close professional rapport with national organizations that could help accomplish their work. A link to all national organizations such as the Joint Council on Economic Education, the National Council for the Social Studies, the Social Science Education Consortium, the American Economic Association, and commercial publishers should begin early in the project and continue through its duration. This will assure greater knowledge and use of the materials after the projects are completed.

AN AGENDA FOR FUTURE CURRICULUM DEVELOPMENT

Now the difficult decisions must be made. If funds were to become available for research, development, and implementation of new precollege curriculum materials, how should the money be used? What projects should receive highest priority? What tasks are most effectively accomplished with limited funds? What activities require the largest amounts of resources? What is the optimal mix of project development and implementation activities? The following commentary reflects our professional judgment about how resources should be allocated for research and development in economic education during the next decade.

Alternative Budget Levels

The first step is to project several alternative levels of funding. Our projections are based on six examples of curriculum development projects: *Chemical Educational Materials Study, High School Geography Project, Sociological Resources for the Social Studies, Comparing Political Experiences, Economics in Society,* and *Unemployment Insurance Curriculum Development Project.* All projects except the last two were supported by the National Science Foundation, with the details of their budgets summarized in the May 1975 report of the National Science Foundation's science curriculum review team; budget data on the last two projects were provided by the respective project originators.

Chemical Educational Materials Study (CHEM Study) was a major science curriculum project for grades 10-12, funded in 1960 and completed in 1972. During its 12-year history, the project received 2.6 million dollars for development and 4.6 million dollars for implementation.

The High School Geography Project (HSGP), also a ten-year project, received 2.3 million dollars for development and 1.9 million dollars for implementation. The project was completed in 1970.

The *Sociological Resources for the Social Studies* (SRSS) materials took seven years to complete and implement. The project budget was approximately 2.5 million dollars for development and 1.8 million dollars for implementation. Work was completed in 1971.

Comparing Political Experiences (CPE) is a four-year project which will be completed in 1977. To date the project has received 1.3 million dollars for development and 57,000 dollars for implementation.

Economics in Society (EIS) was a ten-year project which received approximately 400,000 dollars in grants. Funds were provided during the 1960s, and the materials have been recently published.

The *Unemployment Insurance Curriculum Development Project* (UICDP) is charged with revising a four-week curriculum unit developed in 1971 by the National Council for the Social Studies for the Department of Labor. The current revision calls for an assessment of the present kit, a revision of the kit, field testing of the revised materials, a second revision, and teacher training implementation workshops. The total budget for the 30-month project is approximately 150,000 dollars.

Table 1 summarizes information on these projects and attempts to place a 1976 dollar figure on the costs. For completed projects all budget figures have been increased by 50 percent to more accurately reflect the true cost of those projects if they were financed today.

TABLE 1

Curriculum Project Time and Costs

	Duration of Project	Development Cost	Implementation Cost	Total Cost	1976 Costs
CHEM Study	12 years	$2.6 M	$4.6 M	$7.2 M	$9.3 M
HSGP	10 years	$2.3 M	$1.9 M	$4.2 M	$5.5 M
SRSS	7 years	$2.5 M	$1.8 M	$4.3 M	$5.6 M
CPE	4 years	$1.3 M	$63,000	$1.4 M	$1.5 M*
EIS	3 years	$250,000	$150,000	$400,000	$520,000
UICDP	2.5 years	$100,000	$ 56,000	$156,000	$156,000

*Increased by only 10% because it is the most recently funded.

The figures above can be viewed as suggesting a reasonable dollar range of funding which might become available to implement some or all of the recommendations from this conference. After considering this range, we established three budget totals which a developer or developers could conceivably receive to accomplish the identified tasks. The three budgets are 150,000 dollars (low), 1 million dollars (medium), and 5 million dollars (high).

We then determined our priorities for developmental work within the constraints of these budgets. Two criteria were used to identify what should be done: (1) projects with the highest priority—those projects deemed most important and necessary, and (2) projects that can be accomplished, given the limited resources available. A discussion of our priority determinations follows.

Low Budget ($150,000) Priorities

If only limited resources are available, it is our judgment that they should be used to (1) develop a measure of economic literacy, (2) investigate current use of available materials, and (3) modify existing materials.

In a low budget, the highest priority task should be defining more clearly the goals and objectives of economic education at various levels and specifying how learner achievement of goals and objectives is to be measured. While varied attempts to define "economic understanding" or "economic literacy" have already been made, the time has come for greater specificity as to what it is that we want school children to be able to do as they progress through the grades and what we want adults to know or to be able to do.

We are not thinking of some minimal level of achievement to be met, but rather of a continuum of knowledge and skills that reflects differing capabilities to deal with economic issues. Presently, a variety of tests are available to assess what students and adults know about economics, but it is not clear that any of these instruments measure what we are trying to do. Nor do we have any standards by which to judge and evaluate the achievement of people at different stages in their education and careers. In conclusion, we must sharpen our own understanding of just what we are attempting to achieve and find some way of assessing this achievement.

The second priority is to investigate current use of presently available materials. Over the past decade much effort and money have gone into curriculum materials development in economic education. These materials range from comprehensive, multilevel curriculum programs whose development cost exceeded one-half million dollars, to single-concept, single-level products produced at minimal cost. Many of the smaller-scale programs originated in the Developmental Economic Education Program (DEEP) sponsored by the Joint Council on Economic Education or were funded by state boards of education, foundations, economic interest groups, and commercial publishers. Despite the large volume of activity and investment of substantial resources in developing curriculum materials, not enough is known about their effectiveness. In addition, no good estimates of current use of these materials exist, and no comparisons of the relative effectiveness of these materials have been made.

We believe that substantial effort is required to learn from what has already been done before undertaking the development of new materials. As part of this investigation, we must learn how extensively the materials were or are used, difficulties encountered in installing the materials in schools, and, in many cases, why these materials have not had a more lasting impact on economic education. Another part of this task should be to discover the effectiveness of these materials in enabling users to achieve economic literacy or economic understanding. This information will set the stage for later development work by identifying past mistakes which should be avoided and positive experiences which should be built upon.

The third priority must be given to modifying existing materials. An inventory of these materials must be made, evaluations of these materials studied, their weaknesses identified, and modifications made. Widely used materials should be selected because this indicates a commitment and loyalty of teachers and school districts to the materials. Installation of modified materials is more likely if original materials were widely-used and well-liked. For such efforts to succeed, developers must work closely with commercial publishers from the outset of projects to insure that the suggested modifications are incorporated into materials as subsequent printings occur.

Several kinds of modifications in economic education materials are required. First, erroneous content must be corrected. Second, materials which do not accurately reflect actual conditions must be modified; in particular, subtle sexist, racist, and other biases must be eliminated. Third, content gaps in materials need to be filled, and information should be added to reflect new conditions arising since the original materials were developed.

Modifications which facilitate the infusion of these materials into ongoing curriculum need to be made. Such modifications would reveal how the content of economics can be introduced in the social studies in early grades, how it can be infused into required history and government courses in the high schools, and perhaps how it can be integrated into mathematics and English courses as well. In addition, teacher's guides should explain how the modified materials can help improve economic understanding. Without sufficient explanation of how to incorporate materials into various teaching situations, the new materials are likely to have a minimal impact. If teachers are forced to deal with an unfamiliar subject without guidance, they are likely to ignore newly available changes in the student materials.

Compared to most NSF-sponsored curriculum development work, the three priority areas involve a series of tasks which are well-specified, manageable, and relatively inexpensive to complete. The described work would give focus to economic education, fill important gaps, and correct deficiencies which now exist. Developers should be encouraged to design small-scale projects that accomplish these objectives. Small projects can have a profound impact if the work is applied in appropriate areas. Projects which change already popular materials can produce especially significant leverage.

Medium Budget ($1,000,000) Priorities

If larger amounts of money are available, more ambitious projects can be undertaken. Like a low budget project, a medium budget project should develop a measure of economic literacy and investigate current use of available materials. In addition, the medium budget would allow developers to originate new items rather than modify materials. This would result in the development of new materials to supplement existing curricula but would not involve the development of a new economics curriculum.

The scope of the materials developed in a medium budget project should be limited. As suggested by conference participants, materials should focus on children 12-15 years of age, usually junior high school students. Supplementary materials should be suitable for infusion into traditional junior high social science curricula such as social studies (civics, history), mathematics, and geography. This kind of curriculum development could provide an almost complete unit of materials at the junior high level and still be developed with a minimum budget.

Large Budget ($5,000,000) Priorities

If more substantial funds are available, our priorities would remain the same but the scope of the activities would be broadened. A measure of literacy

TABLE 2

Priorities with Three Different Budget Levels

	Low Budget	Medium Budget	Large Budget
Develop Measure of Economic Literacy	x	x	x
Evaluate Existing Materials	x	x	x
Modify Existing Materials	x		
Develop New Materials		x	x
Develop Competing Projects			x
Develop Materials for Junior High		x	
Develop Materials for All Levels			x
Fund and Conduct Teacher Training			x

would be developed, an investigation of materials would be conducted, new materials would be developed, and teacher training sessions would be organized on a regional basis.

As part of this effort, we recommend the undertaking of several competing national curriculum projects. The purpose would not be to encourage the development of comprehensive economics courses, since separate courses have little chance of being implemented. Instead, an infusion approach should be pursued. A variety of materials to be used by teachers at appropriate times in different subject areas could be packaged in kits. These kits would include detailed instructions on how to use these materials and how to integrate them into existing curriculum programs in schools.

To stimulate the development of better materials through competition, two or more infusion projects, independent but having the same overall objectives, should be funded. This approach will not necessarily result in one project being clearly superior to another; rather, each is likely to produce certain superior components. Such an approach should not be interpreted as wasteful. Instead, more good ideas are likely to result from parallel studies, greater choice will be provided for adopters, and ultimately the knowledge and skills acquired by a large number of citizens will be greater than if all effort is concentrated on a single project.

Table 2 summarizes priorities by budget level.

Other Priority Work

If extensive developmental efforts in economic education are undertaken, several other work areas should be given priority. Specifically, three types of studies are needed.

First, economic educators could greatly benefit from a synthesis of pertinent general educational theories and their relevance to economic education. Much of what is known about conceptual development, cognitive and affective learning, learning theory, and other important areas in education research is not widely shared among economic educators. Most professionals in economic education are economists by training. They have not had the time or opportunity to assimilate the existing and newly developing knowledge from educational theory. The time required to achieve professional competence in economics and to acquire some knowledge of economic education leaves practitioners without the breadth of knowledge required to do effective developmental work. A concise synthesis of educational knowledge would be quite useful to potential economics curriculum developers.

Second, it would be desirable to commission a study to survey what has been learned from various precollege curriculum projects sponsored by the National Science Foundation in the natural and social sciences. What did these projects cost? Was there an appropriate distribution of development and installation funds? What experiences from these projects can be applied to developmental work in economic education? These are important questions whose answers could help future developers avoid troublesome bottlenecks. Some of this work has been started by the American Institutes for Research* and Hulda Grobman.** Both these studies identified specific innovative projects and compared their development and impact. More information about other well-financed projects is needed.

Finally, basic research is needed on how students learn, at what rate they learn, when they are most likely to make different kinds of learning gains, how they form their conceptual images of the economic world, and what influences their feeling of efficacy in the economic process. If this information were available and applied to economic learning, economic education materials could be more effectively tailored to reflect student capabilities and thereby minimize teacher frustration in trying to teach economics to precollege students.

The value of research in these three areas would not be unique to economic education. Instead, such research would benefit educators in every discipline and should be pursued to improve all development work in precollege education.

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The development work needed in precollege economic education poses a considerable challenge to aspiring developers. Existing gaps have been identified and actions designed to close them suggested. In particular, a measure of economic literacy should be developed, and an assessment of available materials should be conducted. Developmental work should concentrate on supplementing and improving existing curricula. All development activity should be conducted over an extended time period and involve all parts of the development process. If possible, competing grants should be given to curriculum developers to stimulate a healthy competition of ideas and work progress.

We hope these recommendations will be carefully considered and thoughtfully evaluated, but most of all, we hope that resources will be made available to do substantial development work in precollege economic education. The need for development exists and has been clearly identified. Now the opportunity and resources to meet the need must be provided.

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*American Institutes for Research. *Product Development Reports: Individualized Case Studies of the Instructional Development of 20 Innovative Educational Products*. Palo Alto, CA: American Institutes for Research, 1976.

**Hulda Grobman. *Developmental Curriculum Projects: Decision Points and Processes*. Itasca, IL: F. E. Peacock Publishers, Inc., 1970.

Part II Perspectives from the Discipline of Economics

Perspectives on Economics—*Leonid Hurwicz*
    Response—*R. A. Gordon*
    Response—*Lawrence Senesh*

The State of Economic Literacy—*W. Lee Hansen*
    Response—*Leonard Silk*

Perspectives on Economics

Leonid Hurwicz

In this paper, the author undertakes the difficult task of summarizing major new directions in economic thinking and research. To accomplish this assignment, Hurwicz presents a certain amount of historical perspective, giving particular attention to the competitive market system and its shortcomings. Major issues and problems of Hurwicz's historical review include partial and general equilibrium, externalities, increasing returns, monopoly, and oligopoly. The principal thrust of Hurwicz's review of new frontiers in economic thinking is the design of economic systems in which assumptions and institutional arrangements, taken as given and immutable in much of our past economic thinking, become variables subject to investigation and change.

For economics this is an era of contradiction and paradox. Following two postwar decades of self-satisfaction with the behavior of the economy and the state of the discipline, we are now experiencing the simultaneous evils of inflation and unemployment as well as profound dissatisfaction with the economy's distribution of income. While college students crowd economics classrooms, expecting to hear solutions or hoping to develop their own, many academic economists are either less convinced that they have the answers or are less convincing to their own colleagues when they present diagnoses and prescriptions.

In this climate we are naturally led to reconsider both the substance and methodology of our science. Not surprisingly, macroeconomics is in the center of attention. So-called Keynesian models*, oversimplified for classroom use, had led some to think in terms of a sharp dichotomy between a regime of less than full employment in which money, wages, and prices

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*I say "so-called Keynesian" because Keynes himself, in a chapter of his *General Theory* called "The Theory of Prices," stressed the role of "bottlenecks" and increased wage demands in creating what he called positions of "semi-inflation" despite existence of unemployed resources. He thus avoided the oversimplifications vitiating some of his followers' work.

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remain virtually constant and a full employment economy in which prices vary in proportion to wages.

There had been much optimism concerning the potential for reconciling high levels of employment with price stability. This optimism was, in part at least, generated by oversimplified models and seemed to be confirmed by much of the U.S. postwar period. However, it was seriously undermined by the inability of Great Britain and other West European countries to halt the upward movement of prices and wages and has yielded more recently to widespread professional pessimism.

This reversal of attitudes has been reinforced by the simultaneity of high unemployment rates and rapid price increases in the U.S. in the last few years. Given the presence of exogenous forces such as the oil embargo and weather impact on food supply, this "stagflation" might have been classified as an aberration unrepresentative of the economic system had not our discipline been intellectually prepared for such a coincidence by the Phillips curve doctrine. This doctrine states that as unemployment falls, the rate of inflation rises even before "full employment" is reached. Initially developed on the basis of empirical observations, the Phillips curve has lately been supplied with explanatory theoretical models of individual behavior. It appears to face the policymaker with the choice between unacceptably high levels of inflation or unemployment.

Some argue that our present difficulties result in part from the success of our earlier full employment policies, particularly in the 1960s. Others argue that economics faces a more basic problem—the inherent variability of human behavior patterns and institutions. I shall not try to assess the merits of each of these explanations. However, I do feel that recent experience should make an economist more modest about understanding of the causal relations in the macroeconomy and about having a solid scientific basis for policy recommendations likely to produce results commensurate with claims often made for them.

Economics as a discipline need not be apologetic for having encountered phenomena which are not amenable to satisfactory explanation in the light of earlier theories. After all, physicists and astronomers have just recently discovered new evidence contradicting the heretofore accepted theories of how and why the sun shines! Nor must we plead guilty for failing to find remedies that would make our economy attain performance levels corresponding to popular aspirations. These levels may be outside the realm of possibility, given the various constraints under which we operate. Medical experience teaches that toxic side effects may be an unavoidable accompaniment of therapy.

There is, however, a legitimate question: Is economics, as a discipline, making appropriate efforts in the right direction to fill the gaps and, where necessary, radically restructure its approach? This question has many ramifications: empiricism versus theory, the role of mathematics in economic analysis, the problems and limitations of competitive markets, institutional aspects, and policy issues. Without attempting to do justice to all, I shall try placing some of these issues in a more systematic framework and then concentrate on those closest to my principal area of interest—the design of economic systems.

ISSUES AND PROBLEMS IN ECONOMIC ANALYSIS

Empirical Observations, Theory, and Mathematics

Whether economists are trying to prescribe remedies or merely to develop an understanding of the economic process, they are—or should be—dealing with the real world of economic phenomena, just as physicists deal with the world of physical phenomena. Problem formulations suggest themselves to the economist from observations or debates among policy makers, reformers, or even utopians who are motivated by their notions about actual or potential economic performance. No doubt the basic stimulus and often the framework of economic analysis come from the empirical side. However, in trying to answer policy questions, one is forced to conjecture the likely consequences of hypothetical actions, typically in circumstances where many causal factors are variable but beyond control. A scientist's reaction is to construct a model encompassing the essential features of the phenomena and to examine the consequences of policies under consideration within the framework of the model. But such a model hardly puts the scientist in a position to draw immediate policy conclusions.

Although the model is necessarily a simplified version of reality, it should be tested to determine how well it explains observed phenomena. In the field of macro-models of the U.S. economy such testing is routine, and if the fit is not good enough, an attempt is typically made to improve the model. We witness here a remarkable degree of interaction between empirical observation and theory. Highly sophisticated mathematical tools are involved both in model construction and in statistical procedures used to test hypotheses underlying the model. Furthermore, these procedures provide quantitative estimates of the direction and magnitude of effects of the policies under consideration. In addition, projections are obtained to serve as bases for forecasts of economic variables. Whether the models and econometric techniques used in generating the estimates and forecasts are correct, or at least good enough for purposes of policy, is a matter of controversy. The error margins are undoubtedly larger than we would like them to be. Still, econometric macro-models are widely used both by public and private bodies.

Econometrics could not have attained its present state without the use of mathematical techniques. This is particularly evident in developing justifications for the choice of algebraic form of, say, the equation explaining investment behavior. But perhaps the most important role mathematics has played here is in helping the economist analyze the operation of a system with simultaneous and complex feedback effects; these effects are a fundamental feature of interdependence of economic phenomena and are difficult to grasp without the use of mathematics.

On the other hand, I do not believe that the "power of resolution" (to use the microscope analogy) of the econometric macro-models is sufficient to distinguish between the alternative hypotheses explaining, say, the Phillips curve. Here again there is an analogy from physical science: to explain the ocean currents, one must draw on knowledge developed not only from observing those currents but also from laboratory experiments performed on a small scale with high accuracy. For the economist, micro-analysis becomes an essential adjunct of macro-analysis.

Unfortunately, a real integration of these two major branches of analysis, although advocated and attempted in different ways for about three decades, is far from accomplished. For one thing, there is as yet no accepted body of theory concerning the behavior of the individual economic unit, be it a household or a firm. But even if this were available, there would remain the major unsolved problem of aggregation, that is, the problem of explaining the behavior of observable aggregative variables such as GNP and the price level, given the behavior of the individual units.

Competitive Equilibrium and Beyond

The persistence of such a gap between understanding the behavior of individual units and explaining the movements of the aggregative variables, may seem surprising since much of economists' recent thinking has been based on a model whose goal is to build up the behavior of the whole system from postulates concerning the behavior of individual units. This model is known under various labels—general equilibrium, neoclassical, and Arrow-Debreu. In its narrowest interpretation, it postulates perfectly competitive (price-taking) behavior on everyone's part and deals only with the system when at rest (in equilibrium). Putting these two features together, it is a theory of perfectly competitive equilibria. *Competitive equilibrium* (short for "perfectly competitive equilibrium") is defined as a position of the economy in which all parties, firms as well as households, behave as if their actions would have no effect on the prevailing prices and wages[*], consumers/workers maximize satisfaction subject to the requirement of balancing the household budget, firms maximize profits, and aggregate supply equals aggregate demand.

A basic proposition concerning competitive equilibrium is that, under certain conditions discussed below, it is guaranteed to be *optimal*, meaning that there is no feasible reallocation of resources that could raise anyone's satisfaction without lowering that of someone else.[**] The conditions under which the optimality of competitive equilibria is guaranteed are imposed upon the economic environment. By *economic environment* we mean those aspects of the economy taken as given by the economist—including preferences and behavior patterns of household and firms, technology, and resource endowment. In contrast to the notion of economic environment, we speak of the economic *mechanism* or *system* as the set of "rules of the game" and institutions that can be changed by the society's decisions. Perfectly competitive mechanisms are a special category in the class of market mechanisms.

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[*] Such behavior is called price-taking (as opposed to price-setting); it is also called parametric treatment of prices because prices are viewed as fixed parameters.

[**] This notion of optimality is referred to as "Pareto-optimality." In the literature the term "efficient" is often used as a synonym for "optimal." Our usage of "efficient," however, will be confined to the sphere of production; we speak of efficiency if aggreegate outputs are maximized given the aggregate inputs or if aggregate inputs are minimized given the aggregate outputs.

To guarantee the optimality of a competitive equilibrium, two conditions are imposed on the economic environment: (1) Absence of externalities, also called "external economies and diseconomies of scale" and "third party costs and benefits." Pollution is a prominent example of an externality. (2) Absence of indivisibilities. A river dam is an example of an indivisible good.

The sort of equilibrium encountered in this neoclassical model clearly rules out a host of phenomena observed in real Western-type economies. In particular, like the classical economics criticized by Keynes in the 1930s, it leaves no room for involuntary unemployment. This is so because, by definition, involuntary unemployment means an excess supply of labor at prevailing money wages and prices, while—also by definition—at a competitive equilibrium there can be no excess supply of any good, including labor, at prevailing wages and prices. Therefore, if one believes that involuntary unemployment often exists, one must look beyond the model of competitive equilibrium. One must also look beyond competitive equilibrium to deal with problems of monopoly.

There are two not incompatible approaches that can be taken when the hypothesis of competitive equilibrium is abandoned. One approach retains the notion of equilibrium but in a sense much broader than competitive equilibrium. In this broader sense, equilibrium is simply any position which has a tendency to persist once having been reached. Thus there is nothing contradictory about equilibrium with involuntary unemployment or monopolies; it is only that such equilibrium is not a competitive equilibrium. Among terms synonymous with this more general notion of equilibrium are "position of rest" and "stationary position." The study of systems in stationary positions is called statics. The second approach involves abandoning the emphasis on statics and focusing on the movements of the system, that is, its dynamics.

From Statics to Dynamics

In recent years there has been so much focus on competitive equilibria that an outside observer can be forgiven for believing dynamics and other than perfectly competitive statics to be alien to the science of economics. But, in fact, both of these "nonclassical" directions have considerable history behind them, and currently there is evidence of renewed interest.

Ours is not the first generation faced with economic disequilibria. In the nineteenth century observers noted the wide swings in economic activity of the capitalist economies (the "trade" or "business cycle"). Not surprisingly, the Great Depression of the 1930s following the boom of the 1920s made many economists feel that the dynamics of the economy, its oscillations and instabilities, are of primary importance and that the economy would rarely and only for short periods find itself in a position of equilibrium. Therefore, it would be irrelevant whether the claims concerning the optimality properties of such equilibria were correct.

Thus, the 1930s witnessed a flowering of literature devoted to economic fluctuations and possible instability phenomena present in the capitalist economy. Some of the earlier attempts at explaining business cycles were widely felt to be unsatisfactory. First, they relied excessively on external causal factors such as sunspots, central bank actions, and government policies. Second, they tended to explain each phase of the cycle by changed behavior patterns peculiar to that phase, without explaining the causes of these changes. A need was felt for the development of *endogenous* theories explaining the phenomena observed during each phase of the cycle as resulting from the accumulated consequences of earlier ones, with strong variation in the economic variables (investment, employment) despite the constancy of behavior patterns such as fraction of income saved or the relationship of investment decisions to variations in aggregate consumption.

Although many of the elements of new theories were developed in intuitive or verbal terms, mathematics again turned out to be the natural tool for integrating these elements into simple, yet powerful, theoretical structures. The mathematical techniques were sometimes largely geometric, as in the models constructed by Kalecki and Kaldor, or based on the framework of difference and differential equations (Tinbergen, Frisch, Kalecki, Le Corbeiller, Samuelson). Those of Frisch allowed explicitly for the important role played by exogenous random disturbances and thus laid a foundation for the construction of statistical (econometric) models incorporating the insights from business cycle theory (Tinbergen, Haavelmo, Koopmans, Klein).

The endogenous business cycle theories and other branches of economic dynamics help to explain why the economy may undergo wide fluctuations away from equilibrium even in the presence of stabilizing forces. But many observers point to the presence of significant unemployment not only during downswings but even during periods of stability. In their view the problem is not merely one of disequilibrium but also one of persistence of "bad equilibria." Thus the issue of dynamics versus imperfect statics reappears.

It might seem that the reversion in the 1950s to perfectly competitive statics was a step backward from the concern with dynamics in the 1930s and 1940s. If so, this step was perhaps necessary to ground the analysis firmly in two important respects: (1) *completeness*—treating the economy as a whole and taking into account all relevant feedbacks—a "general equilibrium" approach as opposed to "partial equilibrium," and (2) *behaviorism*—making assumptions about individual human behavior rather than about movements of "anonymous" aggregates such as price level and GNP. Furthermore, once the statics of perfect competition was analyzed in this manner, the dynamic study of stabilities and instabilities of competitive equilibrium followed within a few years, in the late 1950s. Then in the 1960s, general equilibrium analysis of imperfect markets was initiated.

The ideas underlying these models of the 1950s and 1960s go back to the writings of Walras in the 1870s. Indeed, in currently accepted terminology, "Walrasian" is applied to what we have been calling perfectly competitive equilibria.

It is perhaps depressing that it took economics until the early 1960s to "clean up" the Walrasian inheritance. The reasons for this lag are manifold, among them the fact that the requisite mathematical tools, especially the so-called "fixed-point" theorems, did not become available until well into the twentieth century. But if there is still such a lag now, it is not in the realm of research—where studies of imperfect markets abound—but rather in teaching and popular expositions. Therefore, at present there is little excuse for limiting one's horizons to the framework of Walrasian perfect competition.

Externalities, Increasing Returns, and Equilibrium

Even a casual inspection of the theoretical results concerning competitive equilibria is bound to alert one to the highly restrictive assumptions used in obtaining these results. Rigorous mathematical formulation reinforces this awareness. Foremost among limiting assumptions is the absence of externalities. When externalities are in the picture, competitive equilibria are no longer guaranteed to be optimal. Those familiar with the reasoning used in demonstrating the optimality of competitive equilibria are not likely to rely exclusively on "forces of competition" unless they have escaped the daily reminders of such externalities as air and water pollution, airport noise, crime, drug use, and highway crowding.

Faced with externalities, some economists favor a solution which views the externality as an additional ("negative") commodity and finds the appropriate negative price (for example, an effluent charge); if not laissez-faire, this solution still uses the price mechanism. Thus the mechanism remains of a modified Walrasian type, although there is a state interference with the activities of individual economic units. Yet theory warns us that devices of this type may fail because there may be no position of competitive equilibrium in such a system.

It should be realized that not all systems have equilibrium positions. If they do not, they are doomed to eternal motion—downward, upward, or cyclical—unless they get transformed into other systems that do possess equilibria. Whether a given economic mechanism does or does not have positions of equilibrium depends on two factors: the nature of the *mechanism* and the characteristics of the *economic environment*. Consider, for instance, the mechanism of perfect competition,* in which firms maximize profits, consumers maximize their satisfactions, and both treat prices as unaffected by their decisions.** This mechanism may lack any position of equilibrium when the economic environment is characterized by technologies with increasing returns ("decreasing costs") where output grows more than in proportion to input.

I suppose only an economic theorist would view such economies of scale as troublesome! Others would feel that it is wonderful to be able to increase output more than in proportion to the increase in inputs. The trouble is that the perfectly competitive entrepreneur is supposed to take prices as given and to ignore adverse price changes that would result from the expanded scale of operations. Thus, with increasing returns, he sees his imaginary profits growing without limit as he expands and finds no scale of output at which to stop. Therefore, there is no position of perfectly competitive equilibrium. However, there may well exist positions of *imperfectly* competitive (perhaps monopolistic) equilibrium.

Even though equilibrium positions may exist in an economy, the economy may be in other positions most of the time, like the pendulum of a grandfather clock. Nevertheless, we shall see below that the issue of existence of positions of equilibrium is important in analyzing the workings and viability of a system. We therefore ask, When can one be sure that the mechanism of perfect competition does possess positions of equilibrium? As can be seen from the preceding example of economies of scale (increasing returns), this depends on the economic environment. To guarantee the existence of competitive equilibria, it is usually assumed that the economic environment is free of economies of scale and indivisibilities and that all goods and services have diminishing marginal utility. These and other more technical requirements for competitive equilibrium were specified in basic theorems on the existence and optimality of competitive equilibria by Kenneth Arrow and Gerard Debreu in the early 1950s, extending the early work of Walras in the 1870s and Abraham Wald in the 1930s.

Monopoly and Oligopoly

What happens if some of these environment characteristics are absent and the perfectly competitive mechanism has no equilibrium positions? The example of increasing returns suggests an answer since the presence of increasing returns creates a tendency toward monopoly, thus making it extremely unlikely that firms would ignore the effects of their actions on market prices. Assuming freedom of economic actions, an environment characterized by increasing returns eliminates competitive behavior. Thus, a mechanism (perfect competition) incapable of equilibrium under given environmental conditions is displaced by another mechanism (monopoly) which does possess positions of rest. Of course, these new monopolistic equilibria may well be inefficient or nonoptimal.

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*The competitive equilibrium encountered above is a position of rest of this mechanism.

** Although, in fact, prices will be affected by these decisions.

The presence of economies of scale is only one among many reasons for expecting the emergence of monopolies. Others are well known. They include various barriers to entry: control of resources, patents, regulation, financial limitations, and other organizational devices designed to keep potential entrants out.

Those who tend to identify mathematical economics with the study of perfect competition may be surprised to hear that the rigorous analysis of monopolistic and oligopolistic markets was initiated by the "founding father" of mathematical economics, Augustin Cournot, as early as 1838. Economic theorists after Cournot had not lost awareness of the monopoly and oligopoly phenomena and, perhaps with the exception of Schumpeter, considered them to result in social waste—that is, in inefficiency and nonoptimality. Yet until the 1930s little progress was made in the analysis of these phenomena. Pure monopoly was probably regarded by many as rare or unimportant, by others as presenting a political but not an intellectual challenge, since the behavior of a monopolistic firm was easily analyzed. With regard to oligopoly, on the other hand, no consensus could be reached as to the proper analytical framework. The solution proposed by Cournot was criticized by many, but alternative models proposed by the critics (such as Bertrand) failed to find general acceptance.

The 1930s saw a resurgence of interest in monopoly phenomena, although mainly in the context of partial equilibrium theory, devoted to the study of individual industries without taking into account system-wide repercussions and feedbacks. Chamberlin utilized the Cournot-Bertrand analytical framework to study, under the label of *monopolistic competition*, the implications of product differentiation (possibly resulting from advertising) when free entry is assumed. Joan Robinson looked into related phenomena, including market discrimination, and called them *imperfect competition*. Some of Chamberlin's conclusions for the markets with many small sellers of closely related goods—the "large numbers" case—especially the zero profit claim, were properly criticized, but much of his analysis is correct and of practical interest. Yet Chamberlin's monopolistic competition has not been integrated into modern "general equilibrium" analysis, perhaps partly because it was viewed as a rather harmless and insignificant phenomenon. Unfortunately, there has been little work on the welfare loss aspect of the "large numbers" monopolistic case, and it is difficult to see clear policy conclusions.

The situation with regard to the "small numbers" cases—especially oligopoly and bilateral monopoly—is very difficult. Static analysis easily shows that nondiscriminatory monopoly equilibria are inefficient and nonoptimal. Indeed, under increasing returns, social waste is likely to occur, given the requirement that price should cover average (unit) costs. But—as seen by Schumpeter—a purely static analysis is not an adequate basis for policy conclusions, especially when applied in the realm of research and development.

Remedies for Monopolistic Waste

During the 1930s not everyone was willing to accept social waste resulting from monopoly as unavoidable. Some saw "socialism" as a solution, but meaningful economic content had to be put into this term. The relevant version of "socialism" is that proposed by Lange and Lerner since, despite a radical departure from capitalism in institutional structure, it proposed a state-operated price and output policy that amounted to a simulation of competitive markets, including profit maximization by firms, but with profits going to the state. It may seem paradoxical that socialism should be advocated as a means of providing a social mechanism for the enforcement of perfect competition, in part on the ground that capitalism leads to monopoly and oligopoly rather than competition. However, the proposal is theoretically viable if one is prepared to adopt the assumptions guaranteeing the possibility and the optimality of competitive equilibria. But we saw earlier that these equilibria would typically fail to exist in the presence of economies of scale (increasing returns) which are likely to account for the monopolies the socialist system wants to supplant as wasteful. Hence, it was necessary to go beyond competitive market rules and find principles for the behavior of firms with increasing returns that would be neither monopolistic nor competitive.

Marginal cost pricing turned out to be such a principle. Operating on this principle, a firm is required (as in the world of perfect competition) to treat prices parametrically—that is, to ignore its own effects on the market—and to minimize the total cost of producing a given output. But unlike a market firm, whether monopolistic or competitive, it must renounce the desire to maximize profit; instead, it must bring its output to a level where the resulting marginal cost will just equal the prevailing announced price. Should this create excess demand or supply, the price will be adjusted in the proper direction just as in a competitive economy. For firms with decreasing returns, this behavior turns out to be equivalent to profit maximization, but for firms with increasing returns a deficit will be generated. In a socialist economy, this deficit could presumably be covered out of profits generated by other firms or out of taxes.

However, even without socializing the whole economy, marginal cost pricing could be viewed as increasing the efficiency of the system. It was advocated in this spirit by Hotelling in the United States, in particular for the railroads, in the mid-1930s. Of course, here too the problem of deficit would have to be resolved, perhaps through a tax-supported subsidy from the state. After World War II many countries, both in Western Europe and in areas of the Third World, nationalized industries with increasing returns; hence, the issue of appropriate pricing policies to be followed by nationalized enterprises gained in importance. Marginal cost pricing, as well as other more complex pricing rules designed to minimize waste under these conditions without incurring deficits, have been tried in various countries.

DESIGNING ECONOMIC SYSTEMS

In my view, the importance of the Hotelling-Lange-Lerner[*] ideas on marginal cost pricing lies not in the specific contents of their proposals which are open to a variety of technical and practical criticism. Rather, they are important because they open a new path for economic analysis: the use of tools of theoretical analysis in exploring, in a normative spirit, alternatives to existing institutional arrangements.

These analytical explorations have shown that not all proposals for alternative economic systems are Utopian. Hayek and von Mises had questioned whether even theoretically a socialist economy could generate the information required to make it work. The Lange-Lerner solution and the ensuing debate laid a foundation for the systematic study of whole classes of resource allocation mechanisms or systems. Instead of being a *given*, the *mechanism* becomes the *unknown of the problem*. In this spirit, the economist can view the problem as one of designing a mechanism maximizing certain social desiderata, such as efficiency, equity, and freedom—subject to behavioral and information constraints.

This approach differs from the traditional economic analysis which mostly focuses on idealized[**] versions of systems that either exist or have existed in the past. While the study of historically observed systems is essential in *positive* economics, more is needed for *normative* purposes. Of course, classical welfare economics is done in a normative spirit, pursuing the desirable as distinct from the actual. However, much of traditional normative economics deals with the desirability of specific actions, such as whether to build a certain dam, or with the choice of appropriate levels of certain control parameters, such as foreign exchange rates or discount rates; this might be called *action-normative* economics. By contrast, in designing a new mechanism we deal with the comparative desirability of alternative operating rules and organizational structures including those that have never been tried; this might be called *system-normative* economics.

As is usual with such distinctions, there are borderline cases that qualify under both headings. Thus lowering import duties constitutes an adjustment of control parameters and qualifies in the action-normative sphere. But bringing them down to zero level produces conditions of free trade and may be viewed as a change in operating rules, that is, in the system-normative sphere.

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[*] There were, of course, precursors. With regard to the marginal cost pricing idea, credit is given Dupuit who proposed it in connection with the financing of public works in 1844. Lindahl's proposal (1919) for resource allocation involving public goods was an important early step in the direction of designing novel mechanisms.

[**] By "idealized" I mean simplified for purposes of analysis rather than made to appear better than they are, although the latter type of idealization is not rare.

System-normative issues are before us virtually all the time. Most recently they have been conspicuous in the environmental domain. New institutional structures, such as environmental control agencies, have been created, with operating rules that call for vastly increased information flow (impact statements) prior to decision making. Typically, such requirements decrease the autonomy of individual units, both public and private. In the past, important system changes occurred in the financial sector, again involving new organizational structures, such as the Federal Reserve System and the Federal Deposit Insurance Corporation, and radically modified operational rules.

The preceding examples involve important but still very partial system changes, superimposed on existing structures and touching only selected sectors of the economy. But there are system models differing from existing reality in a manner that touches all sectors and virtually all dimensions of economic activity. The differences can be as far reaching as those between medieval feudalism and nineteenth-century market capitalism or as those between socialism Swedish style and socialism Soviet style.

Centralization Versus Decentralization

If one is persuaded that designing alternative systems and mechanisms is an important task for economics, there is a danger of designing an economic Utopia. It is pointless to postulate an omniscient and all-powerful central authority. There are limits to enforceability of rules. Information relevant to economic decision making is widely dispersed throughout the economy, and its transmission between units is often costly or impossible. For these and other reasons, centralization of economic decision making may be either infeasible or extremely wasteful. On this point, much debated during the 1930s, there was substantial agreement between an advocate of socialism (Lange) and an opponent (Hayek). In addition, there may be preference for decentralization on ethical and other noneconomic grounds, such as civil liberties and the value of self-expression. On the other hand, it must be recognized that there are circumstances where centralization is feasible and decentralization would result in inefficiency. In any case, it is of great importance to see whether economic systems designed to cope with various obstacles (such as externalities or increasing returns) are decentralized.

Naturally, whether a system qualifies as decentralized depends on the definition. In our context it seems reasonable to define decentralization in such a manner that a market system would qualify as decentralized. It is essential, however, not to identify decentralization with market mechanism, that is, there should be room for nonmarket systems that are decentralized. Hence, in situations where the competitive mechanism fails to operate satisfactorily, one need not automatically resign oneself to the alternative of centralization or inefficiency; there remains to be explored the third possibility, a system which is both decentralized and efficient but decentralized in a manner different from the competitive mechanism or even any market mechanism.

In defining decentralization, it is convenient to distinguish two aspects: (1) decentralization of authority and incentive structure, and (2) informational decentralization.

With respect to authority structure, decentralization means a high degree of autonomy in decision making by individual units—firms and households. But if a unit is free to choose among many alternative actions, the movements of the economy as a whole can be predicted only if enough is known about the behavioral laws or patterns underlying choices made by the unit. Classical economics has typically assumed maximization of profits and utilities to achieve behavioral determinacy of its model. A system is usually designed in the expectation that the economic units will behave in a specified way. One must ask, however, whether given the rules of the system, this expected behavior would be consistent with the known individual behavior patterns as determined by incentives to which they are known to respond. If the answer is affirmative, we say the system is *incentive-compatible*.

On the informational side, it would not make sense to define (informational) decentralization as complete absence of communication. Our definition is inspired by (but not synonymous with!) the model of perfect competition and its informational advantages discussed by Hayek. In a perfectly competitive market an individual unit (firm, household) can make appropriate decisions as to output, consumption, or trade without any direct knowledge concerning the other units' technologies, preferences, and so on—provided it has received the signals summarizing the relevant information, namely, prices or aggregate excess demand or supply.

Our concept of informational decentralization tries to capture this attribute of a perfectly competitive market while abstracting from its other properties. In particular, it is independent of the nature of signals exchanged between participants. In a perfect market, prices constitute such signals. In other economic systems, quantity targets, or input-output matrices may constitute the signals. Let us refer to the universe of signals available in a system as its language. Informational decentralization is then defined *relative* to that language. There are several conditions that would qualify a system as informationally decentralized. I shall confine myself to two, to which I give what may seem somewhat strange labels, "privacy" and "anonymity." A system is said to be *privacy-preserving* if a unit is able to make appropriate decisions having only that information about other units which has been transmitted *according to the operational rules of the system* and without using signals other than those of the system's language. A system is called *anonymous* if the unit receiving signals need not know the source of origin, as for instance when all one knows is the *aggregate* of bids made by others.

Other things being equal, an informationally decentralized system is easier to operate than one that is not decentralized since it enables participants to make decisions without having to find out the characteristics of other units and without having to keep track of ''who said what,'' as long as the totality of signals received is known. On the other hand, ''other things'' are not always equal. In particular, systems differ with regard to the size and complexity of their languages and also the complexity of decision rules (algorithms). It may be advantageous to trade a degree of informational decentralization for smaller or less complex language or rules of behavior.

The above definition stresses the negative aspect of privacy—what one *need not* know about others. The reverse of the coin is a positive feature, namely, that a privacy-preserving system leads to decision-making where actions pertaining to a given economic unit are based on that unit's signaling and responses. This is good if we assume that a unit is the best source of information about itself. However, reliance on the unit as an exclusive source of information about itself provides an opportunity for misrepresentation.* Hence the system is not likely to work well unless it is incentive-compatible.

Ideally, the reward structure implicit in the system should be such as to encourage behavior corresponding to the true state of affairs within each unit. There has been a good deal of research recently in the area of concocting such reward structures, but it appears that in many situations this is impossible. One is then faced with the choice of either condoning a certain amount of misrepresentation and consequently sustaining a corresponding loss of social welfare (as compared with ideal truthful behavior required by the rules of the system), or sacrificing a degree of informational decentralization by instituting audit and control systems designed to discourage misrepresentation. The latter solution also involves social cost since it requires the diversion of resources into the control process; insofar as it involves an invasion of privacy of economic unit, it may also be viewed as undesirable in terms of human values.

Some System Designs

At this point it will be helpful to have some illustrations of ''artificial'' systems produced in the spirit of design. These systems are often radically different from anything previously tried or observed, yet they are not Utopian. Although far from ready for adoption in their present form, they constitute potentially fruitful steps toward the discovery of better functioning economic systems.

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*Asking for contributions for a public good, such as police protection, is a case in point; the responses of individuals are likely to indicate a lower value than they actually place on the public good.

The marginal cost pricing scheme for dealing with increasing returns which has been discussed above, is perhaps the simplest of the "artificial" systems. In modified form, it has already been applied by nationalized enterprises in certain countries. However, marginal cost pricing rules are difficult to implement because they lack incentive compatibility. To remedy this difficulty, alternative proposals have been made which preserve the incentive of profit maximization.

If profits are to be maximized under increasing returns, we cannot require that firms treat prices as given parameters. If we did, we would be back under a regime of perfect competition which, as seen above, will lack equilibrium. But there is nothing sacred about the parametric price regime. One can substitute for it an arrangement under which a firm will be facing not a given price to be paid independently of the number of units purchased, but rather a price *schedule* where the unit price varies with quantities purchased or sold according to a specific formula which takes account of supply and demand and is calculated so as to yield efficient resource allocation when firms maximize their profits. This is analogous to the situation under monopoly where the firm also faces a schedule, the demand curve, with prices varying according to quantities sold. However, under our "designed" system, the schedules faced by the firms are not the same ones that would have been faced by a monopolist.

This type of system—a variant of which was proposed by Arrow and Hurwicz—is very close to qualifying as informationally decentralized because the schedules can be devised with only a minimum of technological information on the part of system designers, and the firms themselves follow rules that are privacy and anonymity preserving. Also, there is less difficulty with incentives because it is possible to build some form of profit-sharing into the system. However, there are other difficulties, including the possibility of malfunction when the economy starts from a position far removed from an equilibrium.

As another example of an "artificial" system, let me mention a rather different informationally decentralized mechanism which would tend to converge to optimal resource allocations. This system, proposed by Hurwicz, Radner, and Reiter, is called the B-process, where "B" stands for "bidding." The essence of the process is that individual buyers and sellers, both firms and households, make bids which include the terms on which they are willing to buy and sell. Under certain rules and assumptions specified by the authors of this system, successive rounds of bids converge toward a final Pareto-optimal solution, in which all the mutually advantageous transactions have been made and no one can be made better off without someone else being made worse off.

The B-process is informationally decentralized, preserving privacy and anonymity. Its incentive properties have not yet been studied thoroughly, although it is clear that the system moves toward improvement of the participants' position. A most important characteristic of the process is that it converges to optimality, even with increasing returns or indivisibilities, where perfectly competitive equilibria might be nonoptimal or nonexistent.

So far we have seen examples of processes designed to remedy the weaknesses of the perfectly competitive process resulting from factors *internal* to an economic unit, such as increasing returns or indivisibilities. Similarly, there are "artificial" systems designed to remedy difficulties due to interrelations *between* economic units. An instance of this type of problem is the financing of the production of a public good, that is, a good or service where consumption by one person does not diminish its availability to others. Examples are national defense and classical music radio stations. Under ordinary market conditions there arises what is known as the free rider problem—everyone trying to get the service supplied at the expense of others. This leads to a misallocation of resources. Various remedies have been proposed. The best-known of these is Lindahl's, with payments based on the declarations of individuals as to the value of the public good to themselves. This system is informationally decentralized. It is optimal if the declarations of individuals accurately reflect their valuation of the public good, but the incentive structure encourages misrepresentation. Other schemes have been proposed. As an example, in a system suggested by Groves and Ledyard, participants indicate the desired level of public services—knowing the formula that determines their own payments given their own and others' bids. At equilibrium, an optimal allocation results. This and other processes I am familiar with satisfy the requirements of informational decentralization but have other weaknesses: they are either subject to manipulation or require some subsidization.

Potentials and Limitations of System Designs

By analyzing various alternative systems we sometimes discover that optimality cannot be achieved, given realistic assumptions concerning individual incentives and the difficulties of transmitting information from where it originates to where it is needed. Such results are negative, but only in a formal sense. In fact, they should play as constructive a role in designing economic systems as the law of energy conservation does in guiding the design of physical systems: they should make us aware of the unavoidable trade-offs and so steer us away from unrealistic goals.

It may well be that no economic system can guarantee complete efficiency with decentralization and incentive compatibility in an economic environment having externalities, indivisibilities, and public goods. If so, we are faced with a fundamental problem that has only recently begun to be studied: How can one design a decentralized incentive-compatible system with the highest degree of efficiency? We have as yet little idea as to the "efficiency coefficient" one can expect under the best feasible design, except that it will be below 100 percent. Nor do we know how much could be gained by abandoning the requirement of complete decentralization.

In all such calculations, it is not enough to look at the system's efficiency in providing goods and services from resources utilized for *production* purposes, since every system also uses resources in its own *operation*. For instance, the market system uses brokers while a centrally planned system uses planners. Both types of persons constitute human resources diverted from the production of goods and services into the operation of the system. This, of course, does not make them socially useless, since no mechanism will work without some use of resources to make it work. Thus, to properly assess systems, one should use a *net efficiency rating* which takes into account the fraction of social resources used to operate the mechanism. One can think of such a net efficiency rating as a ratio, with the economy's net output in the numerator and the totality of resources used (both for production and for system operation) in the denominator.

It is clear that our analysis, although theoretical, deals to a considerable extent with factors usually called institutional. These factors enter the analysis in several ways. For example, they appear in connection with incentive structures. Recent contributions to the study of incentives have been made by Keren and Stiglitz who compared the performance of systems under which labor is rewarded through a wage, on a piece rate basis, or through renting. Criminal law enforcement has been studied in a similar manner by examining the effects of incentive—or rather disincentive—aspects of different penal systems.

Institutional factors play an important part in our concept of net efficiency since the cost of operating a system and, in fact, its feasibility, is crucially dependent on legal and other institutions which determine the flow of information, the liability structure, the required intensity of enforcement of rules, and so forth. One is almost tempted to say that the "right institutional framework" is our major unknown. In any case, once we are in the area of system design, theory is needed for institutional analysis, and institutions constitute a major element of the theoretical structure.

BROADENING HORIZONS

A general systematic study of economic systems is still a formidable undertaking, and we have made no more than a beginning. But a significant broadening of our vision can already be discerned. An important body of recent literature is, for instance, devoted to the performance of an economy such as Yugoslavia where worker-managed enterprises predominate. A start has been made in analyzing Soviet-type economies. And last, but not least, "general equilibrium" models of capitalist economies are no longer confined to the perfectly competitive framework.

Significant advances have been made in models of capitalist economies with aspects of both monopoly and oligopoly. Both statics and dynamics of "complete"* systems containing significant monopoly aspects have been studied by Negishi, Arrow, and Hahn. There is as yet no "complete" model comprehensive enough to allow for the unrestricted presence of oligopolies. The latter is perhaps the next item on the economist's agenda, but the difficulties faced are formidable. Partial equilibrium contributions in the realm of oligopoly with free entry have provided important building blocks by Bain, Sylos-Labini, and Dewey. Important contributions have also come from abstract game theory developments.

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*A model is called "complete" if it takes into account the various indirect feedbacks; thus a general equilibrium model is complete in this sense, while partial equilibrium analysis is not.

Another avenue of progress involves noncompetitive behavior patterns resulting from uncertainty concerning others' actions. Such uncertainty, together with transaction costs and monetary phenomena, has been used by Benassy, Varian, Hahn, and Futia to define a "neo-Keynesian" notion of effective demand. This newly defined effective demand may explain certain aspects of involuntary unemployment—without abandoning the assumption of rational behavior on the part of either entrepreneurs or workers.

A more radical departure drops the assumption that economic units try to maximize profits or satisfaction. Instead, the assumption is that these units are satisfied so long as they are above a certain "aspiration level" but go into action when falling below this level. Such behavior is called "satisficing," and has been studied by Simon, Radner, and Rothschild.

MANAGING THE FUTURE

An important shortcoming of the competitive model which we have not yet dealt with explicitly is its treatment of the future. The competitive model is inadequate as a basis for formulating policies to cope with cyclical swings in unemployment and prices and issues of economic development and growth.

Our major linkages to the future are (1) current decisions to invest in plant and equipment to produce goods and services in the future, and (2) current plans of firms and households to buy goods and services in the future. Many of the problems of a competitive system stem from miscalculations about the relationships between future supplies and demands. These problems could be handled within the competitive framework if for all goods and services there existed comprehensive futures markets similar to the futures markets which do exist for many commodities. But such universal futures markets do not in fact exist. Hence the resulting system does not qualify as truly competitive; it may be called an *incomplete market* system. In the absence of futures markets, investment decisions must be made on the basis of expectations about future prices and demands, expectations which may turn out to be very inaccurate. Consequently, in such an incomplete market system, there is no basis for asserting that decisions—taken in the absence of comprehensive futures markets—will be either efficient or optimal.

One theoretical attempt to get around this difficulty is based on the assumption that buyers and sellers, observing the discrepancies between their predictions and their experience, will modify both their forecast formulas and decision principles so that in time their expectations will tend to be confirmed by subsequent experience. In my view, this *rational expectation hypothesis* requires such a long time perspective as to have at best limited applicability to problems involving capital formation and cyclical fluctuations.

An alternative approach to dealing with the future is a system called *indicative planning* which is practiced to some extent in France. Such "planning" involves exchanges of information concerning the intentions and expectations of the various economic decision makers but includes no commitments or coercion. In principle, it could lead to the elimination of inconsistent expectations among the participants. Also, given the statements of intentions and plans, one could calculate the likely forms and levels of capital formation, simulating a complete futures market. For instance, should the extrapolations indicate excess supplies of future services generated by the planned capital expansion, the expansion plans could be scaled down until a prospective balance develops.

In my view, however, indicative planning fails as a substitute for the absent futures markets. Statements of intentions are not as reliable as binding contracts that would have been entered into if the futures markets existed. Nor do I see any reason to think of the intention statements as mutually self-enforcing. The resulting uncertainty would induce at least some participants to depart from stated intentions to protect themselves against the consequences of just such a departure by others. What the indicative planning system lacks is the element of guarantee.

The provision of guarantees is possible through various social mechanisms, although perhaps at the cost of introducing a degree of centralization. Guarantees offer still another approach to the problem of managing the future—an approach still in its infancy as far as research and theory are concerned. In practice, however, such guarantees are familiar in forms such as home mortgage and student loan guarantees and even in the New York City rescue operation. Particularly in times of economic stress, there are many pressures for guarantees of many kinds and these guarantees, once instituted, may persist even when the economic stress is lessened. Examples are farm price parity, indexation of wages, and ceilings on prices, wages, and interest rates. The debates that ensue usually center on their administrative feasibility and costs or their effects on income distribution. A more fundamental issue is, To what extent can and should we provide guarantees aginst the vicissitudes of the economic process given the difficulty of either controlling or predicting its path?

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In the foregoing survey, I have tried to show that the horizons of contemporary economic analysis are by no means limited to the abstract perfectly competitive model, nor even to market-type phenomena. Economics has responded to criticisms of its simplistic theories by building into its models such aspects of reality as uncertainty, time structure, externalities, economies of scale, sensitivity to incentives, and monopolistic or manipulative behavior.

I have emphasized the efficiency and optimality aspects of economic systems, while neglecting the distributive aspects, primarily because my own work has been in the former area. There has been recent analytical work on the concepts of fairness and equity in economic systems and on the extent to which a trade-off between fairness and efficiency may be unavoidable. We have also become more aware of the importance of income distribution even in the perfectly competitive models. Developments in the area of social welfare and choice functions have provided economics with natural tools for incorporating distributive value judgments into normative theory. In my view, however, the distributive aspects, although not ignored, have not as yet been integrated into the general framework of economic analysis to an extent comparable with efficiency aspects.

That formal theoretical analysis has lagged behind economic reality can not be denied. But in the 1950s this lag was about 80 years; at present I would estimate it at between five and ten years. The perfectly competitive model is only a small, though technically important, part of the field. Theoretical work is progressively intertwining theoretical postulates, empirical observations, and institutional elements into one integrated structure amenable to analytical treatment. At the same time, applied policy analysis, using tools such as cost-benefit calculations and econometric models, makes systematic use of the available theoretical tools. I optimistically expect the methodological quarrels based on schools of thought committed to particular techniques or tools to pass into well-deserved oblivion. Economic analysis, which in the past regarded as the only legitimate objects of study a few traditional systems and the manipulation or policy parameters (such as the rate of money growth) is moving toward a creative and imaginative role in designing social mechanisms and institutions superior to those now existing.

Economics is far from having complete answers to our era's complex questions. We still lack satisfactory explanations for some observed phenomena, and we often lack remedies—even when the disease has been diagnosed. However, there has been more progress than we tend to claim in the present skeptical period, although perhaps less than we were inclined to claim a decade ago. Progress in understanding is bound to lead to sounder policy prescriptions, albeit with a greater admixture of humility. I do not believe the students crowding our economics classes are wasting their time.

A Response to "Perspectives on Economics"

R. A. Gordon

In assessing Hurwicz's paper, this respondent questions the relevance of the author's survey of recent developments in economic theory for precollege economics teachers. Gordon suggests that in focusing on conventional, chiefly neoclassical theory Hurwicz has omitted many areas of economics, such as international economics, labor economics, and human capital, which are of more immediate concern at the elementary and secondary level. In conclusion, Gordon advocates more relevance in economic education with more attention paid the continually changing institutional setting which affects economic behavior.

I am not sure why Professor Hurwicz has been asked to prepare the sort of paper he has presented here at a conference on precollege economic education. What puzzles me is how a survey of this sort will help in teaching economics at the precollege level. I suspect a good many people at this conference cannot understand some of the literature he discusses (I know I cannot), and what the teacher of precollege economics would be able to do with most of the concepts and analytical tools he surveys is beyond me. However, I shall try to meet him on his own ground and comment briefly on his paper.

As one would expect from Professor Hurwicz, he has presented an acute and perceptive survey of recent developments in and the present state of conventional, chiefly neoclassical economic theory, particularly microeconomic theory. But the paper has little or nothing to say about recent developments in a number of areas of economics—particularly in the applied fields but also in some theoretical areas. Although he could not be expected to cover the universe in a short paper, I regret to say that what he has covered is likely to be less useful to teachers below the college level than what he has

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omitted. I take the liberty to mention a few important areas about which Hurwicz has had little or nothing to say.

Let me begin with the many facets of international economics, including the forces that are changing the role of the United States in the world economy, the dramatic increase in output in Western Europe and Japan, the development of new theories and policies with respect to balance-of-payments equilibrium, and the internal dynamics of the Third World.

Hurwicz has also ignored the field of labor economics, including the rapidly growing literature on the dual labor market, developments in the theory of collective bargaining, the internal dynamics of the union movement, and so on.

The body of literature on human capital, spreading into the economics not only of education but also crime, marriage, health has not been considered, despite its spectacular growth in recent years.

Another ignored field is search theory and what Edmund Phelps has termed the micro foundations of macroeconomic theory.

I could mention other neglected areas, but I turn now to consider an issue raised in Huriwcz's paper. It is the issue with which I dealt in my Presidential Address before the American Economic Association at Dallas in December 1975. The title of the address was "Rigor and Relevance in a Changing Institutional Setting" (Gordon 1976).

Consider the first part of this title, "Rigor and Relevance." The literature covered by Hurwicz, especially that concerning microeconomic theory, is marked much more by rigor than by relevance. Certainly we want students in the schools to be taught to reason about economic problems with a reasonable degree of rigor, but what we teach must be relevant to the observable world if it is to mean anything to students.

The second part of my title was "in a Changing Institutional Setting." It has long been true that economic theory does not pay enough attention to the institutional setting which conditions economic behavior. We cannot, for example, explain inflationary trends since World War II in this and other countries without trying to understand the institutional changes which have been occurring.

The institutional setting for economic behavior is continually changing. It is unfortunately true that the central core of economic theory pays little attention to how these changes affect the usefulness of our analytical tools. Even more important, conventional economics does not stop to ask why these changes have occurred and how the institutional environment will change in the future. How did we get to where we are, and where are we going?

It seems to me that a more institutionally oriented economics that asks important and challenging questions might help to awaken the interest of at least high school students in the field of economics.

A Response to "Perspectives on Economics"

Lawrence Senesh

In reviewing Hurwicz's paper, this respondent focuses on how "frontier thinking" can be translated into precollege curriculum. Pinpointing several of the economic concepts discussed by Hurwicz, Senesh first provides a short explanation of the concept then gives examples of how the concept can be presented to precollege students through various classroom activities. The response ends with Senesh's plea that the economics profession encourage more interchange between economic theorists and economic educators.

Professor Leonid Hurwicz in his paper, "Perspectives on Economics," presents some of the frontier thinking in economics. The purpose of his presentation is to challenge economic educators. This challenge is long overdue since the teaching of economics faces the continuing threat of obsolescence. The advancement of economic science is proceeding at a faster rate than the corresponding changes in curriculum. This may not be the case in universities where textbook writing has attracted some leading theoreticians of the profession, but it is surely the case in the public schools where textbook writers in most cases have not had the analytical faculties to translate frontier thinking into the classroom and relate new ideas to children's experience.

To read Hurwicz's paper is not a honeymoon. The paper is difficult to read. His style and flow of thoughts tax the endurance of the reader, particularly that of this economic educator who volunteered to relate his path-breaking ideas to the public school curriculum.

For an economic educator, the greatest challenge in Professor Hurwicz's paper is his presentation of the building blocks of an economic system that includes the best of three worlds: the benefits of perfect competition, the

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benefits of economies of scale, and the benefits of general equilibrium analysis. These are treated in a unified systems framework rather than in an isolated manner.

SEARCHING FOR AN OPTIMAL ECONOMIC SYSTEM

According to Hurwicz, the search for an optimal economic system involves the following questions and answers.

A. What should we look for in an optimal economic system?
   1. It should include an incentive system which relies not only on market incentives but on other incentives generated within the firm independently of the market.
   2. It should incorporate social goals that reflect the value system of the society and will provide a proper trade-off with efficiency.

B. If a system must be modified to assure optimality, what are the features we much watch?
   3. The system should maximize net efficiency (value of output minus cost of private and public maintenance).
   4. The system should provide a decentralized information system to protect individual freedom and information from distortion or coercion.

C. What are the deficiencies and omissions of the market system that require correction?
   5. The system needs to minimize uncertainties.
   6. The system needs to incorporate externalities in such a way that, for example, the marginal damage to the environment is commensurate with the marginal cost of preventing or correcting environmental externalities.
   7. The system needs to equalize the costs and benefits of public goods.
   8. The system needs to assure public benefits from the economies of scale generated by big business.

These eight characteristics of an optimal economic system deserve special notice not only because they suggest ways of improving our own economic system but also because they present the frontier thinking in contemporary economic analysis. As such, they should be incorporated into the economics curriculum in the classroom. A little imagination and thoughtfulness, as well as a basic understanding of the concepts involved, are needed to integrate this frontier knowledge into classroom activities.

APPLYING CONTEMPORARY THINKING TO PRECOLLEGE CURRICULUM

In the following pages, I will summarize some of the points made by Hurwicz and suggest ways in which some of his ideas can be incorporated into the curriculum.

Incentive Systems

A central component of an optimal economic system is a design for incentives that leads both labor and management to produce goods and services at the lowest possible cost. The most powerful incentive in the market is the expectation of profit. Within the business system, a new incentive system which operates independently of the market must be constructed. One reason for the need of the new incentive system is the separation of corporate management from ownership.

The separation of corporation management from ownership weakens profit incentive. Most business managers in medium- and large-sized firms are engaged in what is called satisficing behavior. They satisfy their stockholders with an adequate but less than optimal profit margin while they stimulate their own egos with elegant offices, large supportive staffs, and other prerequisites of their positions. Since power and prestige tend to accompany bigness, a corporate executive may expand production to a point well beyond that of maximum efficiency and maximum profit. This behavior leads to inefficiency. A new incentive structure that will stimulate management to maximize profit and tame their ambition for bigness for its own sake may be needed.

An incentive system independent of the market is necessary for the labor force as well. Economists are now studying the effectiveness of different incentive schemes for labor and are trying to gauge the relative effectiveness of various economic and noneconomic rewards such as wages, piece-rate payments, profit-sharing, and worker-managed enterprise. They are also studying how developing loyalty to the company, as displayed by Japanese workers, and openness of communication between management and labor affect employee incentives.

The development of the incentive system within a firm produces great problems. It is difficult to measure the potentialities of the labor force members. Potentiality is a latent quality, hardly observable. In some cases, a small incentive may result in high worker efficiency. In other cases, a great incentive program may bring forth little measurable result.

Curriculum Application.

To apply this concept to the classroom, students can study the incentive systems of the Chicano, Native American, and Anglo cultures. Based on this study, the class may discuss how these cultures affect the economic behavior of individuals in the cultures.

Students can contrast how the incentive system works in a capitalistic country such as the United States with its working in communist countries. Discovering that the incentives within different communist countries vary greatly, students may ask, What are the weaknesses and the strengths of these incentives? and What do the state and/or the business management do to correct weaknesses?

Students can investigate and evaluate incentives that encourage efficiency and productivity in businesses located in their own communities. Ways in which incentives may be increased can be explored.

Another classroom exercise can involve one class in establishing special incentives to study a particular subject, while a control class studies the same material without special incentives. Students can then compare the effectiveness of the special incentives for learning and relate this comparison to the economic system. In the process of evaluating the results, the class may find that the special incentive system works better with some individuals in the experimental class than with others, and the class can discuss reasons for this.

Students can have a panel on the following topic: How can the school system build an incentive system that will stimulate students to develop their potentialities? The students may invite successful school alumni to tell about incentives they gained from school which led to self-development, or they can invite successful blue- and white-collar workers to talk about their occupational commitments and explain the forces that stimulated them to excellence.

A class can invite talented young people who participate in the various branches of the performing arts to find out what qualities people must have to be motivated for excellence in these fields. How do the environment or the qualities of these young people differ from those of students in the class?

Social Goals and Trade-Offs

Economic efficiency may not always be compatible with other goals our society wants its economic system to accomplish. An optimal economic system must find the most acceptable trade-offs between efficiency and other social goals, as well as the most acceptable trade-offs between social goals which may be in conflict.

There are seven social goals our society wants to accomplish: economic growth, economic stability, economic security, economic freedom, economic justice, and a good quality of life. The seventh goal—the assurance of a minimum standard of living—must be the rock bottom of all the other goals.

While any one society in different time periods or different societies in any one time period have different combinations of social goals, an optimal social system must not use the guarantee of a minimum living standard as a trade-off for other social goals. To achieve some of these goals, change the emphasis among the goals, or incorporate new goals in the economic system, it may be necessary either to undertake small institutional adjustments or to build new mechanisms or new organizational structures.

"Action-normative" economics deals with the desirability of specific actions within the system. "System-normative" economics deals with the construction of new mechanisms and operating rules necessary to change the emphasis of the goals or to incorporate new goals into the system.

Curriculum Application.

Students can discuss the meaning of "a minimum standard of living" in terms of food, clothing, shelter, and amenities. What do families need to develop the potentialities of their members? The class can interview welfare workers, doctors, and nutritionists to determine the presently accepted budget for a minimum, decent standard of living. Students may investigate the adequacy of the negative income tax assuring a minimum standard of living. Mock congressional hearings can be held. Economists, political scientists, sociologists, psychologists, or humanists may testify on behalf of or against legislation which would assure a decent standard of living for all American families.

A classroom discussion on the question "What do we want our economic system to accomplish?" can be held, with random answers classified into the six social goals listed earlier. Students may discuss how accomplishing some of these goals can lessen economic efficiency. They can also discuss trade-offs among the six goals. The forces that shaped these goals and changed their emphasis during history can also be examined.

A class may investigate the differences among the goals of an imperfectly competitive market system, a perfectly competitive system, and a mixed economic system such as ours. They may discover that through the political process our society has identified social goals and demanded that market decisions be modified to promote the general welfare. They may also discover how difficult it is to coordinate different goals because of conflicts, such as the conflict between economic growth and economic security, and they can practice trade-offs between the goals. Students may compare our economic system with economic systems in developing countries where priorities are different because of differences in the structure of the social system and differences in value preferences.

During the academic year, students can investigate those political demands which necessitate changes within the economic system and those demands which would necessitate the development of new institutions to accommodate the political demands. Students may discuss to what extent these adjustments challenge the economic freedom of consumers, producers, and the market which represents the foundation of the classical competitive system. For example, to cope with the problem of pollution or to develop a comprehensive energy policy may necessitate a considerable overhaul of our existing market system. Students interested in history may study the differences between medieval feudalism and market capitalism and investigate those forces which contributed to the decline of the former and the rise of the later system.

Maximizing Net Efficiency

A principal purpose of any economic system is the production of goods and services with the greatest efficiency i.e., producing the greatest output with the smallest input. This production system must be assisted by an extensive supporting system.

Some supporting systems are operating within the business system. These systems include the advertising system, the marketing system, reward systems to creditors and stockholders, and private communications and transportation systems. Other supporting systems operate within the public sector. They are the judicial system, the law enforcement system, public transportation and communication systems, government sponsored and research systems, the defense system, the education and welfare system, and the consumer protection system.

The cost of maintaining the private and public supporting systems determines the net efficiency of the economic system, since it must be charged against the value of goods and services produced. The difference between the value of goods and services produced and the cost of maintaining the supporting systems measures the net efficiency of the economic system. The larger the net efficiency, the more closely the economic system approaches the optimum level of operation.

Curriculum Application.

To understand the importance of net efficiency, students may work out the following problem.

NET EFFICIENCY PROBLEM

Let us pretend that there is a labor force of 100 workers who are producing TV sets.

Model I

Situation 1

Every person engaged in the production process produces six TV sets a week. Seventy workers are engaged in the production process and 30 are employed in the supporting system. *Total production: 420 TV sets per week.*

Situation 2

Every person engaged in the production process produces four TV sets a week. Ninety workers are engaged in the production process and ten are employed in the supporting system. *Total production: 360 TV sets per week.*

Discussion Question:

In which situation is the net efficiency greater?

Model II

Situation I

Every person engaged in the production process produces five TV sets a week. Seventy workers are engaged in the production process and 30 are employed in the supporting system. *Total production: 350 TV sets per week.*

Situation 2

Every person engaged in the production process produces four TV sets a week. Ninety workers are engaged in the production process and ten are engaged by the supporting system. *Total production: 360 TV sets per week.*

Discussion Question:

In which situation is the net efficiency greater?

Students in upper grades can study all four situations and discuss the relationship between employment in the production system and in the support system and examine how the efficiency of the workers affects net efficiency.

To further their understanding of net efficiency, students can study why a new industry moving into their town decided to locate there. They may discover that the community's supporting systems played an important role in the company's decision.

Advanced students may study the concept of zero-based budgeting (ZBB), a tool for measuring the net efficiency of alternative approaches to programs administered by the government.

Working in small groups, students can examine already existing tax-supported programs, such as education, parks, waterfront development, and police forces. Dealing with a single program, each group can prepare a statement responding to the following questions: What would happen if the program were eliminated? How could you adjust the program if the budget were cut by half? What would be the consequences? What would you do if the city council increased your budget by 50 percent? How would you allocate the budget among the different phases of the program? After the committees make their reports, the class can establish priorities among the four programs.

Upon completing the activity, senior high school students should undertake a study of their school system based on the principles of ZBB. The students can discuss how the ZBB approach enables government to increase the net efficiency of the system.

To help lower grade students understand the concept of supporting systems, a teacher can ask them to name the supporting systems that contribute to the functions of a corner grocery.

The Need for Decentralizing Information

An optimal economic system is one in which information is decentralized. Decentralization of economic information is necessary on ideological grounds. It establishes an environment for self-expression. When information comes from a multitude of sources, the decentralization protects members of society from coercion and economic messages from distortion. The competitive system is based on decentralized information in which information is forwarded without communication between individuals. Therefore, the competitive system, through the decentralized information system, preserves privacy and anonymity.

Curriculum Application.

To illustrate the benefits of information decentralization, the class may be divided into two groups. One group can study the commodity exchange, the other the stock exchange. Each group traces prevailing market prices back to the information provided by thousands of individual buyers and sellers. The class can then discuss why this decentralization is important for preserving political freedom and how it leads to maximum consumer satisfaction. This system can be compared to a system, as in the USSR and China, where centralized planning takes place. The question, What is the source of information that determines what to produce and at what price? could be explored.

Students may also investigate how the information channel between the higher and lower echelons of a business enterprise system operates. They can examine the role of a suggestion box in furthering innovation?

To make students aware that sometimes reliance on the market as an exclusive source of information may be misleading, students can discuss the following questions: Does the market price of natural gas reflect the true situation of the energy crisis? Does the market price of steel or coal reflect the true amount of production costs? Students may also discuss the difficulties in establishing a welfare or subsidy program when the operation of the system depends upon the accuracy of information authorities receive from the welfare recipient.

Minimizing Uncertainties

An economic system faces many uncertainties. Generally speaking uncertainties may be divided into two types. One type of uncertainty is external to the system. War, earthquake, draught are examples of external uncertainties.

The second type of uncertainty is generated by the economic system itself. Firms and households must make decisions today that affect their futures. Such decisions involve firms' plans to invest in new capital equipment and plant expansion or to introduce a new product, or a family's decision to sign a mortgage for a new home.

Since no one can predict the future with absolute accuracy, economic decisions made today and based on imperfect information about the future may result in an inefficient resource use in the future. A firm may decide to expand its plant size only to find that demand for its product is falling a year from now. Ultimately it may decide not to introduce a new product only to find a few years later that the product would have met an important consumer demand. Cities needing loans to finance public services may in some cases find that lending institutions refuse to provide loans because they are uncertain about the cities' future ability to pay. Or, a community, in a referendum, may refuse to approve a school bond issue to build new schools. A very complex uncertainty arises when one economic agent does not know what the other economic agent may do. For example, the development of a suburban neighborhood may be stopped because the construction firm did not receive accurate signals from the developers of the transportation system that would connect the suburban development to the inner city.

Economists are studying ways to lessen future uncertainties. One way is through private insurance which operates on the principle of sharing risks. Another way is to eliminate the sources of uncertainties through binding decisions of authorities. Laws concerning the use of safety belts, air bags, and speed limits reduce the source of uncertainties relating to the physical hazards of death and disability.

Uncertainties may also be lessened through the disclosure and coordination of parties' future intentions. This involves having the economic agents come together to exchange information about their future intentions. In the example mentioned above, the suburban developers and the transportation agents would come together to exchange information about their plans in an effort to decrease uncertainty and increase efficiency. This coordinating function we may call *indicative planning.*

There are two forces which undermine the operation of the private insurance principle. One is moral hazard occuring when the insurer overexploits the system. There is hardly any defense against such overexploitation. Such exploitation is often based on misrepresentation of facts. The other undermining force is the magnitude of uncertainties, not well suited to spread the risk, such as drought, earthquakes, or floods. In these cases public policy may play an important role in lessening the uncertainties.

Curriculum Application.

To explain the meaning of indicative planning, five students can play the roles of candy producers, each wanting to produce and sell a different kind of candy. Each producer explains to the class the kind of candy he or she wants to produce and the price at which it will be sold. The class then tallies the total demand for each kind of candy, and the producers readjust their plans, if necessary, based on the indicated future demand. In this way, planned demand can be equated with planned supply.

By way of contrast, the activity can be conducted without class discussion, so that the producers base their future output decisions on guesses about future demand. Once output levels are determined by this method, a tally of demand can be taken. Students can then compare the inefficiencies caused by guessing and uncertainty with the efficiencies generated when indicative planning takes place. Also, students may act out the situation in which the parties give one another misleading information that only increases uncertainty.

Dividing into five committees, the class may study the following problem: How can the American family be protected against the economic uncertainties of unemployment and against the physical uncertainties of death of the breadwinner, old age, and disability?

One committee can investigate how the uncertainties are mitigated by individual efforts in proper nutrition, increasing earning capacity through education, or budgeting, saving, and private insurance programs. The second committee may investigate how uncertainty is lessened through business programs such as private pension plans and insurance programs. The third committee may investigate how uncertainties are mitigated by government programs such as social security. A fourth committee can collect statistical data which measure the scope of uncertainties. And a fifth committee can investigate how historical forces (such as longevity, increasing dependence on cash income, inflationary trends, and technology) aggravate uncertainty.

To discover the uncertainties the businessperson faces, students may interview business executives to find out the types of uncertainties they face and how they protect themselves against such uncertainties. Students can interview lawyers to find out how excessive insurance claims can jeopardize the operation of the insurance principle.

The negative aspects of total removal of uncertainties could be easily acted out in the classroom during a science fair. After students have presented their inventions and discussed their potential commercial applications, the class can discuss the related wish to incorporate some of these inventions into the commercial system. What would happen with many of these innovations if there were no risk-takers in a world of uncertainty? And, what would happen if the government guaranteed a profit to every producer?

Externalities

In the market system, the price for goods and services must reflect the cost of production. However, in the process of producing many goods and services, some costs generated are not included in the price. Society carries these costs. They are called *externalities* since they are external to the market system and its prices. A common example of the externality is the smoke and other pollution that comes from smokestacks at steel mills. The smoke produced in the process of making steel may generate costs for the community in which the steel mill is located. These costs may take the form of medical bills for lung disease or laundry and painting bills resulting from the prevalent smoke and soot. Since these costs are carried by the community at large, the cost of producing steel in the market is understated and so is the price of the steel. The result is misallocation of resources.

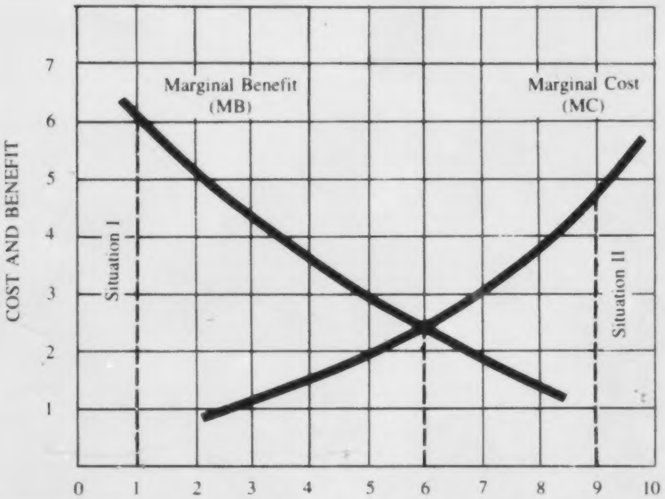
Hurwicz interprets the concept of externalities more broadly than it is usually used. He considers that New York City's fiscal difficulties have been caused by external forces, such as national recession and immigration of low income groups into the city. In an optimal economic system, externalities must have a price attached. This price must be paid either by the consumer, as in the case of steel, or by the American society at large, as in the case of the externalities causing New York City's fiscal difficulties.

Curriculum Application.

To illustrate the problem of externalities, students can survey their own community and report on externalities that are causing environmental deterioration. They may invite local political leaders and other speakers to report on the ways the political system copes with externalities affecting the environment. They can discuss those externalities or additional costs to the community which have been caused by forces outside of the community: natural disaster, te impact of the immigration of people from rural areas, and bankruptcy of local firms caused by the changing defense policy of the United States.

The following chart can be studied by the class:

Increasing Effluent Treatment or Increasing Purity of the "Clear"*



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*Reprinted with permission from *Economic Growth and Environmental Decay: The Solution Becomes the Problem*, by Paul W. Barkley and David W. Seckler, Harcourt Brace Jovanovich, Inc., New York, 1972, p. 104.

The teacher may discuss the following case with the class. An industry moves into a town and causes great damage to the environment. A negotiation starts between city officials and the industry. The industry is willing to clean up the environment, but there are certain questions to be decided: Should the industry restore the environment to the same state it was in before the industry moved in? Should the industry limit the cleanup to the point that the cost will not exceed the benefit the community gains, since there is a point beyond which the cost far exceeds the benefit? Should the industry improve the environment to an optimal level and give some cash compensation to the members of the community for the loss of the original state?

Public Goods

Another problem related to externalities involves what is often called the "free rider" problem. As the name suggests, this problem concerns those who receive benefits from some kind of public good but do not pay their share of the costs. The free rider problem is usually associated with government projects or other public undertakings.

An example of the free rider problem may occur when a group of people decide that they would like a neighborhood park in place of a junky vacant lot. They are in effect proposing the creation of a public good—a free public park open to all. If they go door-to-door asking for donations to build the park, they are likely to encounter the free rider problem. All the families in the neighborhood may want the park, yet some may refuse to pay their share, reasoning that if their neighbors all donate, the park will be built and they will be able to use the park without paying anything themselves. Of course, if enough people feel this way, the park will not be built. This would result in a less than efficient use of resources, since each family would have been willing to pay for the park if it had been a private rather than a public good.

Curriculum Application.

Students can act out the problem of free riders in the following way. The class pretends it is a neighborhood. The local neighborhood leader shows a photograph or drawing of an empty, neglected lot belonging to the city. The leader explains that the lot, in its present condition, threatens the health, safety, and beauty of the neighborhood. The leader also points out that real estate prices in the neighborhood have been declining because of the crime that takes place around the lot. The neighborhood decides it wants to make a park out of the lot.

Several students can play the roles of neighbors. There will be a retired homeowner, a family with two small children, an old lady who feeds pigeons in the empty lot, a college student who will leave the neighborhood in a year, and a store owner whose store is located next to the lot. One of the people will be chosen as the free rider. The others will be issued $10.00 in paper money. Students playing these roles describe how they feel about the park and pledge a donation of from $1.00 to $10.00. The rest of the students may then challenge the amount of each donation, giving reasons for their challenges. The students can also discuss what can be done with the free rider to insure that the park is built and that everyone shares fairly in the cost. Students may also discuss how difficult it is to estimate the benefits people receive from the public goods.

Public Benefits from Economies of Scale

A perfectly competitive economic system is one in which there are large numbers of small producers, each producing a homogeneous product using an identical technology. As a result of competition, no excessive profits are being made by any firm. Each firm makes only enough to pay the costs of labor, management, rent, and interest on the capital investment. Since no excess profit (competitive return over cost) is being made, this system is the most efficient economic system, providing the largest output at the lowest price.

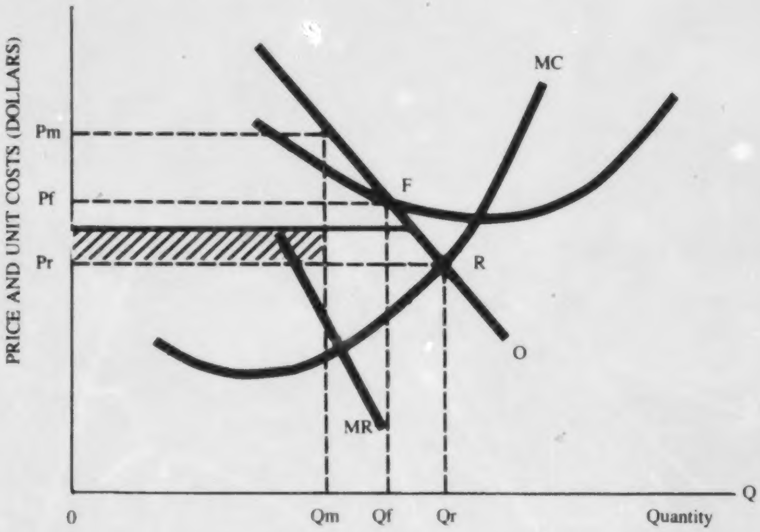
In some industries, however, this ideal perfect competition—even if it could exist in the real world—would not be the most efficient economic system. There are industries, such as the auto industry, that are characterized by economies of scale. For firms in these industries, the cost of producing each additional unit of output declines over a wide range of output. Thus, the larger the firm becomes, the lower the cost of production. For example, a large auto firm with its assembly lines, its highly specialized labor force, and its technically advanced machines, can produce a car at a much lower cost than a small firm that works on only one car at a time. Here, a few giant firms dominate the industry. New firms cannot enter, since they would be starting out as small firms and would never be able to compete with the large firms.

Monopolies and oligopolies benefiting from economies of scale (decreasing average cost) may be more efficient than small competitive firms in the same industry, yet they are inefficient in a special sense. It is true that they can produce a greater output at a lower cost than would be possible in a competitive situation with many small, high-cost producers. They are capable of getting more output with the same input than two small firms. For this reason, large firms with economies of scale can sell goods at a lower price than small firms.

However, monopolies and oligopolies, unlike competitive firms, can set the price for their products far above the cost of production. If the firms were operating at a socially optimal level, they would be selling their products at a price equal to the cost of producing the marginal or last unit produced. Furthermore, they would choose the technology and other input factors which would minimize the production costs and the price. But the firm would suffer a loss, since the price would fall below average total cost of production. To preserve efficiency, then, the system must (a) preserve advantages of economies of scale so that the society can benefit from economies of scale, and (b) subsidize the firm for its losses without encouraging inefficiencies. Here the incentive structure plays a significant role. It must stimulate the imperfect competitor to produce more rather than less by utilizing efficiency potential fully. The benefit from the economies of scale would promote public welfare. Finally, (c) government may subsidize firms for research and development, pushing down total average unit cost to the price set at the optimal level where MC = P.

Curriculum Application.

High school students may study graphs of the monopolistic firm and trace the relative social efficiency of monopoly pricing, average cost pricing, and marginal cost pricing, as shown in the graph below. Students should be able to identify the amount of the subsidy required to keep the firm in operation and still insure efficient use of resources.



In this graph, the unregulated monopolist would produce Q_m and sell it at P_m. The regulated monopolist using average cost pricing would produce A_f and sell it at P_f. The still more efficient marginal cost pricing for the regulated monopolist would result in Q_r being produced and sold at P_r. However, this would result in a loss to the firm, requiring a subsidy of the amount of the hatched area.

General Equilibrium Models

Hurwicz suggests that the eight areas of study discussed above are of special importance in understanding how economic systems should be adapted to achieve conditions of optimality and in designing new economic arrangements for our own society. One way in which these concepts can be used by economists is in modifying general equilibrium models of the economic system. Only with such modifications can the full effects of alternative policies be assessed.

Economists are becoming highly aware that improvements in macroeconomic analysis must be tied to a better understanding of microeconomics. These two fields of economics have been largely separated in the past, mainly because economists did not know how to build the total picture of the economy from the individual households and firms. As economists realize the importance of integrating the two fields of study, they are returning to the tool of the general equilibrium model.

A general equilibrium model of the economy is a set of equations relating the prices, inputs, and outputs of all resources, goods, and services in the economy. The model shows that any change in the economy will be felt in every other part of the system, even if it is so slight that only economists detect the change. In the general equilibrium view, the economic system in a state of equilibrium, or rest, might correspond to a quiet pond. When a pebble is dropped into the pond, waves that eventually reach every part of the pond are generated. After a while, the pond will return to its quiet, or equilibrium, state. However, the pond will not be quite the same; some reeds will have moved slightly because of the waves, and a lily pad or two will have been displaced. In much the same way, any economic event that disturbs the equilibrium of the economic system will be felt throughout the entire system.

In theory a general equilibrium model should include, in mathematical form, all the economic relationships in the system so that economists can predict, on the macroeconomic level, the results of microeconomic changes in the economy. In practice, such a model would be much too complicated to ever be constructed. Relationships are difficult to identify and are constantly changing. Yet such models can, in simpler forms, be helpful to economists who attempt to visualize how macroeconomics and microeconomics are related.

Unfortunately, most general equilibrium models are based on the perfect competition model of the economy. Such Walrasian models, named for the French economist Leon Walras who first developed them, are based on assumptions that do not reflect economic reality. Economists are familiar with these assumptions as those required for perfect competition:

a. In all industries, the large number of buyers and sellers prevent a single buyer or seller from affecting the price or quantity produced in the industry.

b. All products of a particular kind are homogeneous. Thus, the only possible differentiating characteristic is price.

c. New firms are free to enter the industry, and old firms are free to leave, at any time. There are no legel or technological barriers to entry.

d. No nonprice competition, such as advertising, exists.

e. Information on demand, prices, and production levels is available to all at zero cost.

The Walrasian general equilibrium models have had an inordinant effect on economic thinking. Economists have reached logical conclusions based on the perfect competitive model while neglecting the economic realities of the real but imperfect world in which we live. Students should become aware that the economic system behaves with respect to equilibrium in any of the following three ways: (1) the economic system may settle down below the desired equilibrium, resulting in unemployed resources; (2) the economic system may settle down at an equilibrium which reflects the social goals of the community, or (3) the economic system may never settle down, meaning that activities may oscillate around the desired equilibrium but never remain at the desired equilibrium point.

Hurwicz would like to develop a general equilibrium model which would include changes generated by all the components of the social system: imperfect competition as well as perfect, private sector as well as public sector, and changes in the natural environment as well as in the man-made environment. Such an equilibrium model would be able to predict the consequences of efforts toward an optimum economic system. These efforts include:

a. improvement of incentive systems
b. coordination of social goals
c. maximization of net efficiency
d. decentralization of information systems
e. management of uncertainties
f. incorporation of externalities into the system
g. equalization of costs and benefits of public goods
h. assurance of public benefits from economies of scale

Curriculum Application.

It is very important that students develop a systems awareness of their economic system. In the lower grades, the teacher may initiate the following discussion: Assuming that a factory moves into our neighborhood, bringing with it 100 families, how will such a new external force affect our housing, educational, business, political, transportation, and cultural systems? After the discussion, the teacher should introduce an imperfection that disturbs the outcome. For example, the factory is a paper mill that smells bad. In the process of discussion, students will discover that many components of the economic system do not respond to the market, and government policy will be necessary to make the system work.

To help students gain insight into the broad impact of an economic event, a class can consider the situation arising when the government decides to produce B-1 bombers. The total expenditures would be approximately 35 million dollars. The main contract has been given to one giant corporation located in California. The class can be divided into ten committees, each discussing the impact of the project upon one assigned area.

Committee 1 can discuss the impact of the project on the total airplane industry and airlines considering points such as the cost of the factors of production, price of airplanes, air fares of commercial airlines, and the amount of savings needed for new investment in the airlines. Committee 2 can investigate the impact of the project on related industries such as rubber tires, steel, glass, aluminum, copper, and alloys. Committee 3 can investigate the impact of the project on energy resources. Committee 4 can investigate the impact of the project on the demand for capital goods in the airplane industry. Committee 5 can investigate the impact of the project on the community where the industry is located in terms of size of population, demand for housing and transportation, retail trade, public investment, and land use.

Committee 6 can investigate the impact of the project on other communities from which workers will be attracted. Committee 7 can investigate the impact of the project on gross national product and the distribution of income. Committee 8 can investigate the impact of the project on national priorities, externalities, distribution of social benefits, and net efficiency. Committee 9 can investigate the impact of the project on the character of the competitive system. Committee 10 can investigate the impact of the project on resource allocation to other great powers and on the developing countries.

After these reports, the students can discuss the importance of developing such universal general equilibrium models for decision-making. They can be helped to understand that if decision makers could see the broad consequences of their decisions, perhaps many costly failures could be avoided.

Hurwicz assures the readers of his paper that contemporary economists are indeed breaking away from Walrasian models. Research is proceeding in the areas outlined in this paper and in other areas relating macro and micro aspects of the economic system. It is hoped that general equilibrium views of the economy will benefit from this research. The challenge to the future is to generalize the general equilibrium model.

THE RELATIONSHIP BETWEEN ECONOMISTS AND ECONOMIC EDUCATORS

Economists are indeed expanding the frontiers of knowledge in their discipline. It is the responsibility of the economic educator to be aware of these new dimensions in economic science and to translate them into learning experiences in the classroom. Only in this way will the teaching of economics be made relevant to the lives of students and contribute to an understanding of economics that is the best and most advanced social science can provide.

However, to discover frontier thinking and translate it into the classroom is a painstaking and painful process. The economic educator cannot do this without entering into dialogue with the frontier thinker. As a result of this alliance, the frontier thinker many times discovers that "knowing" and "ways of knowing" are two sides of the same coin and that from such an alliance a clearer formulation of ideas emerges.

The economics profession should establish opportunities for the interaction of frontier thinkers and economic educators. Thank God there are many brilliant innovators in the profession who are not only interested in making their contribution known to their fellow frontier thinkers, but who have a keen desire to put their ideas into the public domain. The economic profession must establish an information channel through which the best and most promising ideas are communicated to economic educators who then relate the frontier thinking to the experience of youth and to the concern of society. This paper is such an attempt.

I am grateful to Professor Hurwicz for our dialogue, although most of it took place over the wires between California and Colorado. At the end of the conversations we both agreed that the dialogue should continue. Our mutual interest is unique since he is interested in furthering the frontiers of knowledge while I am interested in relating frontier thinking to children's experiences. May the invisible hand bless all such partnerships.

The profession should promote such partnerships. The profession should offer a helping hand to put advanced areas of knowledge into the public domain and spend less effort identifying economic understandings for "minimum citizenship."

The State of Economic Literacy

W. Lee Hansen

The author of this paper begins his survey of the state of economic literacy by first examining what is meant by the term "economic literacy." He concludes that there is no operational definition of economic literacy, and that lack, plus the public's seemingly apathetic attitude toward economics, has complicated attempts to measure the population's level of literacy. Hansen then reviews data from various efforts to measure economic literacy, including both standardized tests and public opinion polling, to show that the general state of economic knowledge and understanding among Americans appears, by any standards, is low. The paper concludes with an overview of the goals and directions of the Joint Council on Economic Education's *Master Curriculum Guide*, focusing particularly on the *Guide's* attempt to identify measurable elements of economic understanding.

No one to my knowledge has ever asserted that the economic literacy of the American population is particularly high. Nor has anyone concluded that raising the level of economic literacy is an easy task. The acceptance of either or both of these statements does not mean that we must be content with things as they are. What we need to know is whether the literacy of Americans can be increased and, if it can, how the task can be accomplished. This paper will describe the state of economic literacy in America today and make recommendations about how to raise this level of literacy.

The opportunity to present this paper is timely because never before have we known so much and yet so little about Americans' knowledge of economics. Assorted polling and survey organizations now provide a wealth of data concerning people's knowledge and attitudes about economics and economic issues. Whether the results indicate that people are reasonably knowledgeable remains unclear, largely, it appears, because little effort has been made to interpret the available data.

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While the state of Americans' economic knowledge is unclear, there is a great concern over the population's apparent ignorance about economics and the American economic system. At least three major new efforts to raise people's economic literacy have emerged in the past two years. The Advertising Council is now in the midst of a huge program to educate people about economics through a comprehensive advertising campaign, mass distribution of a booklet on the American economy, and dissemination of other educational materials such as films. The Business Roundtable has for the past year sponsored a series of advertisements in *Reader's Digest* to inform its readers about our economic system. Recently the National Association of Manufacturers announced a limited campaign to tell the public about our economic system and the role of government in that system. What these efforts will come to is difficult to predict.

Amidst this flood of information and activity, it is especially appropriate to ask where we are and where we should be going. This paper addresses these questions. The first part surveys what we know about how economic literacy is defined. The second suggests why the level of economic literacy is likely to be low. The third describes the state of economic literacy as best it can be measured. A fourth section describes some current work to sharpen our conception of economic literacy. The final section offers recommendations about what needs to be done.

MEASURING ECONOMIC LITERACY

There is need for an operational definition of economic literacy with which it would be possible, at a reasonably low cost, to determine the extent of individuals' economic literacy. We would not expect, desirable though it would be, to have an exact measure of literacy. Nor would we want a definition of economic literacy to depend on substantial amounts of formal instruction in economics. However, we would like a measure which indicates that the level of economic literacy has observable consequences in people's behavior and in their beliefs about the economic system.

The term "economic literacy" probably crept into our vocabulary sometime in the last decade or two, most likely in connection with publication of the 1961 Report of the National Task Force on Economic Education (*Economic Education in the Schools* 1961). The Report itself did not use this term; rather it employed the phrase "economic understanding" to refer to the knowledge of economics thought to be attainable and necessary for effective citizenship by the average high school graduate. The Report stressed the need for obtaining an overall perspective on the economic system and for applying a reasoned or rational approach in thinking about economic issues. Above all, it emphasized the substantive knowledge of economics—the tools and concepts—that had to be mastered to achieve economic understanding. Some unspecified blending of these three elements would reflect economic understanding or economic literacy.

Beyond the Task Force Report, one finds little help. Textbooks frequently set forth their goals and objectives, but far too often these goals and objectives are couched in nonmeasurable terms. This makes it difficult, if not impossible, to know what the authors mean by "literacy." Some texts state more specific objectives, such as the development of students' ability to be more effective and critical readers of newspaper articles about economics. But the terms "critical" and "effective" are not defined, so it is difficult for outsiders, and perhaps even student readers, to know what these stated goals mean.

In short, no existing definition appears to offer the promise of providing a useful basis for measuring the population's economic literacy. Although the lack of a definition comes as no surprise, it is difficult to explain. Perhaps economists are lazy, preferring to spend their time on other things. Perhaps economists have already attempted and given up on what appears to be a difficult task; traces of such efforts are reflected by the imprecise statements found in most textbook introductions. It may be that the search for a reasonably precise measure is foolish because of the unlikelihood of developing a metric that would be useful once obtained. I am not certain which of these explanations is most appropriate. It does seem clear that as educators we should try to decide whether it is worthwhile to try to define the concept of economic literacy and to develop an operational measure of it.

EXPLAINING THE LEVEL OF ECONOMIC LITERACY

Coupled with our uncertainty about the meaning of economic literacy is the belief, backed by fragmentary evidence, that people's knowledge of economics is severely limited. Given the nature of our political, social, and economic system with its heavy dependence on individual decision making, we must ask why greater progress has not been made in developing the economic literacy of Americans so that they can grapple with economic issues at more than the most elemental, intuitive level.

The answer, it seems, is that far greater attention has gone to the supply rather than the demand side of the market for economic knowledge and understanding. A review of the work in economic education reveals that considerable effort has been devoted to increasing the number and quality of the producers of economic education (teachers), to improving the means of transmitting economics (curriculum materials), and to giving the subject more appeal (teaching approaches). The underlying assumption is that once we discover the right "mix" of factors and approaches, students and the public will be eager to acquire economic literacy. There is, however, little evidence to back this assumption. For example, though economics enrollments have risen recently at the college level, most students never take an economics course in college. Those who do enroll are often required to do so (perhaps for a business administration degree). An abundance of adult evening courses are offered on a wide array of subjects and skills, but economics courses are relatively few in number. There is little demand for economics news and reporting; how many newspapers have reporters who even pretend to know something about economics or write with any regularity on the subject? In how much depth is economics news reported in newspapers, on radio, over television? In short, it is conceivable that even with well-trained teachers, first-rate materials, exciting approaches, and increased exposure, economic education might still suffer a lack of effectual demand. We may be at a stable, long-run equilibrium right now.

One source of the problem may stem from the very success of the economics profession over the past few decades. With the emergence of the Council of Economic Advisors and the placement of professional economists in key policy-making positions throughout the public and private sectors, more and more Americans have come to believe that the economy is in reasonably good hands, notwithstanding recent events. With more than enough economists available to offer advice to government officials and other decision makers, people wonder why they should spend time trying to learn what is reportedly a difficult and dull subject. This view may have merit. I doubt that most of us, for example, are fully conversant in foreign affairs; we leave that to the Secretary of State and the State Department. We recognize the fundamental economic principles of specialization and division of labor!

Another indication of weak demand for economics education is the relatively low value communities seem to place on economics or social studies courses in elementary and secondary schools. A recent Gallup poll (*Gallup Opinion Index*, No. 119, May 1975), asked respondents to rank nine graduation requirements for students not planning to attend college. Ranked as "very important" (over 85 percent so indicating) were reading, writing, arithmetic, and having a salable skill. Knowing something about the U.S. government and U.S. history were ranked "very important" by 68 and 75 percent of the respondents. Knowing something about other nations and about the humanities were checked as "very important" by 49 and 33 percent. Where economics fits into this array is difficult to determine—it would probably fall somewhere between the "government-history" and "other nations-humanities" requirements. If this placement is correct, parental and community demand for economics education is weak and seems to indicate a judgment that the external benefits of economics instruction are limited.

Student demand also appears to be weak. In part, this may reflect parent's influence and their lack of effectual demand. But other forces also appear to be at work. Students often believe the study of economics provides few direct, private benefits. The increased understanding of economics and economic policies gained in conventional economics courses is thought to only indirectly benefit the student in his/her personal life. Economic study that might provide students more direct benefits, such as improved personal decision making, is generally not viewed as economics by most economists. Perhaps this draws too fine a distinction between economic education for improved citizenship and economic education for improved individual economic decision making. Yet, examination of high school- and college-level textbooks reveals a "citizenship" approach designed to prepare students to understand the larger economic issues. Almost no attention is given to individual decision making. An example of a book at the other extreme is *Sylvia Porter's Money Book* (Porter 1975) written specifically to help individuals make more informed decisions about how to allocate their resources and adapt to changing economic circumstances. The voluntary purchases which kept this book on the best-seller list for more than eight months indicate the public considers it more valuable than typical textbooks.

The distinction—admittedly a polarization—between so-called "citizenship" economics and "personal" economics bears further exploration. Assume for a moment that economics as customarily taught focuses on effective citizenship, meaning that the analysis concerns the large questions of efficiency and equity, stability and growth, and the like. Students quickly note that economics in this context has little direct connection with their lives or the kinds of decisions they make and focuses more on decisions faced by business leaders or government officials with policy-making responsibilities. They also learn that considerable time and effort is required to master this knowledge that will yield small future benefits to them. So even though school resource costs are provided by society to produce what we might think is a public good—economics understanding—the motivation for students to supply the necessary effort to acquire this knowledge is low. Hence, we subsidize the production of economics instruction, but we by no means have full control over the student's input of intellectual effort. For this reason we cannot be assured that the desired output is forthcoming.

Contrast this situation with one which emphasizes personal economic decision making and provides students direct, apparent benefits such as information on career choice, alternative saving and investment opportunities, and personal budgeting. The motivation to acquire this knowledge is usually substantially greater. Put into the language of economists, students see large private benefits relative to the resource costs they would incur anyway (given compulsory school attendance).

The dominant approach to economics teaching, as exemplified by curriculum materials and the formal economics training of teachers, indicates the root of the low demand problem. The effort and resources devoted to producing economic literacy for effective citizenship are frustrated because students perceive individual benefits as minimal. Although students are likely to be more receptive to personal economics because of the individual benefits, the suppliers' interest in and ability to provide such instruction is limited.

What can be done about this situation? Should we try to emphasize the magnitude of the indirect benefits from effective citizenship literacy so students will be motivated to take greater advantage of these learning opportunities? Or should we move the other way, by providing in economics more personal decision making, recognizing we can help prepare individuals to make important personal decisions. Perhaps the output of both types of economic literacy would increase if we could find that optimal but elusive mix in which the learning of personal decision making economics would be inextricably linked with citizenship economics.

How to strike some balance between these two types of literacy is an important issue that most of us have not addressed. The introduction of case studies and current newspaper reports reflects a move away from the greater formalism of a decade or two ago. More important is the recent emergence of secondary-level courses in personal and career economics which mark a sharp break with the past. However we do not know whether such courses actually meet the personal decision making needs of students, nor do we know the extent to which the content of such courses is linked to citizenship economics. Clearly, a major task for us is to explore the two kinds of economic literacy and the ways they affect the demand for economics, as well as the demand for something not always viewed as economics.

Another important but overlooked force restricting effectual student demand for either personal or citizenship economic education is the low level of general literacy in the general population. Unless students possess necessary basic skills, they will experience considerable difficulty in learning economics. As far as I know, there has been no systematic study of what knowledge and skills are prerequisite to achieving economic understanding. Despite this, various skills seem essential: the ability to read, to reason, to perform simple mathematical operations, to interpret graphs and tables, and to comprehend some basic knowledge about the social-political-economic system.

Until recently we have been largely ignorant of student abilities in these and other areas of learning. Recent data from the National Assessment of Educational Progress, an ongoing effort to appraise the extent of learning among young people aged 9, 13, 17, and 26-35, sheds light on what students in fact know or can demonstrate at these various ages.* The results deserve study by economists and economic educators alike. For example, the studies show that on the average young people read as well as the experts had anticipated. Their writing skills—by which they customarily demonstrate what they learn—suffer from serious deficiencies, as recent news reports have indicated. The mathematical skills of students also leave much to be desired, particularly in consumer math where young people had difficulty in tasks such as figuring taxes or balancing a checkbook. Students' knowledge in social studies and citizenship was weak, as was their ability to read and interpret graphs, tables, and maps.

This brief summary of data suggests that economics teaching cannot be made effective until the general level of literacy in other learning areas is upgraded. This task is receiving growing attention by the general public and educators alike. Recent declines in student ability and achievement on national SAT and ACT scores indicate that we may have to wait some time for the right conditions. Or we may want to think about placing economics more centrally in the curriculum and using it as a base to develop general as well as economic literacy.

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*See various reports of the National Assessment of Education Progress from the Education Commission of the States, Denver, Colorado.

DATA ON THE ECONOMIC LITERACY OF THE AMERICAN POPULATION

Even if we could agree on a definition of economic literacy, could we measure it? In the absence of a definition, can we reach a judgment about the extent of economic literacy in the U.S. today? Is it possible to determine in which areas of knowledge people display the greatest strengths and weaknesses? What can we infer from the existing data?

One approach to assessing economic literacy is to examine the scores on standardized tests in economics. At least three such tests exist. One is the Test of Economic Understanding (TEU) devised for use at the precollege level; another is the Test of Understanding College Economics (TUCE). Both instruments were designed to assist in evaluating the effectiveness of economics instruction. Implicitly or explicitly, they reflect some operational concept of what is meant by economic literacy. Another instrument, the College-Level Examination Program (CLEP) test in economics, is designed to find out whether students have acquired through their own efforts, rather than through college courses, sufficient knowledge of economics to warrant receiving college-level credit.

All three examinations reflect the mastery of economics obtained through rather conventional courses in economics. Although these tests have been normed, the interpretation of the scores remains a question. Does literacy imply a score of 100 percent correct, 75 percent correct, 50 percent correct or whatever? Or does literacy mean achieving at least minimum scores on all parts of the exam, irrespective of the overall score? Or should we discount the test results, knowing that five years later the average student will have retained perhaps no more than half of what he/she learned? Regardless of how this question is answered, we still do not know whether mastery of a conventional course, as reflected by these tests, provides a useful measure of what we might want to call economic literacy.

A related approach not yet developed is found in the model of the already mentioned National Assessment of Educational Progress which attempts to monitor student knowledge in a variety of subjects. Several problems arise. The social sciences test includes little or no economics, so no conclusions can be drawn until the number of economics questions is greatly expanded. In addition, the NAEP staff believes the value of their assessment results is in showing what people know, not in trying to pass judgments about the levels of knowledge demonstrated. Thus, efforts to use the NAEP results to measure economic literacy would almost certainly be resisted by NAEP representatives.

We must seek another approach. The most obvious is to review the results of public opinion surveys in the hope of finding questions which indicate some level of economic literacy. This approach has both advantages and disadvantages. The noteworthy advantage is that questions asked in opinion polls reflect knowledge of changing real-world issues and problems rather than knowledge people have learned from a formal course in economics. A review of the public opinion surveys shows that they provide seven types of potentially useful information.

1. Questions of fact about which there can be no disagreement. The only question at issue is the importance of these facts and to what degree they reflect the knowledge required for economic literacy.

2. Questions asking for assessments of the most important problems currently facing the economy. The answers reflect what is uppermost in people's minds, including concerns such as inflation and unemployment. However people reach their conclusions, the answers provide a measure of the impact of economic forces on them.

3. Questions asking for assessments about the future of the economy over the coming months or year. Because the accuracy of these judgments can be determined later, it is possible to evaluate how well those polled understand the working of the economic system. Of course, we must remember that substantial differences in judgment about the future course of the economy are held even among professional economists.

4. Questions about what actions are necessary to deal with specific economic problems. In some cases no clear consensus view about appropriate action exists among economists. In cases where a consensus view exists, we can determine whether the respondents' views agree with the conventional wisdom.

5. Questions about how people would behave under certain specified conditions. On the one hand such answers provide an indication of people's self-interest; there is nothing wrong with viewing economic literacy as including an awareness of one's self-interest. On the other hand, such answers often indicate how individuals may be swayed by considerations of public interest, as for example, a presidential speech calling for individual sacrifices necessary for the common good.

6. Questions about people's priorities—"what ought to be" questions which reflect value judgments.

7. Questions about people's attitudes toward the economic system and its effectiveness. Again, this is an evaluative type of question.

What can we learn about economic literacy from these seven types of questions? Types 6 and 7 are less informative because they ask normative questions. Type 2 is somewhat ambiguous because responses may reflect either or both positive and normative positions. This leaves us with types 1, 3, 4, and 5 as having potential value in assessing economic literacy. Whether these will in fact be useful depends on the way questions are worded and on which alternative responses are provided. A brief summary of evidence for types 1, 3, 4, and 5 follows; we also look at type 7 because it provides some overall assessment.

Factual Knowledge (Question Type 1)

That many Americans remain grossly ignorant of the most basic facts about the economy is revealed by several recent polls. When asked to estimate the average rate of profit after taxes on sales in American business, the median response was 33 percent in early 1975, up from 28 percent a year or so earlier; for oil companies the estimate was 61 percent, and for automobile firms, 39 percent (*ORC Public Opinion Index,* April 1975). In 1974 actual profit rates averaged 5.2 percent for the economy, 7.2 percent for oil companies, and 1.9 percent for automobile firms. The general public was far off. The belief that profit rates were so high undoubtedly led 55 percent of the public to state that government should impose a limit on profit levels. College students did not do much better than the general public. In a 1975 poll, college students estimated rate of profit on sales for large national corporations as 45 percent (*Gallup Opinion Index*, No. 123, September1975). When asked about the income tax rate on corporate earning, they reported a 15 percent figure.

A 1973 poll revealed a widespread belief that the gains from increased productivity go primarily to stockholders and management as compared to consumers and employers (*Harris Survey*, February 19, 1973). This is contrary to the empirical evidence that productivity gains are widely dispersed across the economy through increased wages, profits, and lower prices.

These are but several of the many examples which show how little our future leaders—present college students—as well as the general public know about the fundamental economic facts. It is also interesting that the pollers ask about profit per dollar of sales rather than profit per dollar of capital invested; this reveals their own lack of sophistication in economics!

Assessment of the Future State of the Economy (Question Type 3)

A question regularly asked is, "Do you think the economic situation in the U.S. during the next six months will get better or worse?" Similar questions about future unemployment levels and price changes are also asked. Exactly what "better" or "worse" means is not made clear, but presumably these terms reflect the areas of principal economic concern—prices and employment. The way in which people's assessments change is shown below.

TABLE 1
Economic Expectations

	Better	Worse	Stay Same	No Opinion
LATEST	42%	36%	16%	6%
March '75	35	50	12	3
Feb. '75	30	56	10	4
Nov. '74	16	71	10	3
Sept. '74	15	69	11	5
Aug. '74	13	68	15	4

Gallup Opinion Index, No. 121, July 1975, Princeton, New Jersey, Reprinted with permission.

In general, these percentages seem to move in a leading indicator fashion. Even more striking, though the breakdown is not presented here, is the fact that as the overall percentage of people who report conditions changing from better to worse or from worse to better, the college group is always in the vanguard. Moreover, the ''no opinion'' report is always largest for the least educated.

While perceptions of major economic problems show little difference by respondents' level of schooling, expectation about future conditions do. The cause of this difference is not readily apparent. It may stem simply from differences in the kind and amount of exposure to economic news through radio, TV, newspapers, and perhaps the kinds of jobs these people hold. It seems unlikely that economic education influences these results since most people receive no exposure to economics instruction at any level of school. Thus, their knowledge must originate from other sources.

Analysis of Economic Problems and Issues (Question Type 4)

The ability of people to pinpoint causes of economic problems and suggest remedies cannot be assessed easily through questionnaires; on the other hand, no obvious alternative method exists for doing this. What can the polls tell us?

In late September 1974 people were asked to indicate the ''chief cause of inflation.'' Since economists could not agree on the answer to this question, it is interesting to learn what the public thought just after the President's Inflation Summit meeting. The results are shown below:

TABLE 2

Cause of Inflation

''What, in your opinion, is the chief cause of inflation?''

	Price-Wage Spiral	Poor Gov't Planning	Gov't Over-Spending	Consumer Over Spending	Good of People	Labor/Wage Demands	Excess Bus. Profits	Fuel Prices	Others	Don't Know
NATIONAL	26%	12%	11%	8%	8%	6%	6%	5%	22%	18%
EDUCATION										
College	22	7	17	13	8	8	8	10	20	10
High School	28	12	9	6	9	6	6	4	24	18
Grade School	23	20	9	7	5	3	5	1	17	25

Gallup Opinion Index, No. 113, November 1974, Princeton, New Jersey. Reprinted with permission.

Several comments are in order. First, there is the obvious difficulty of coding people's responses; also when a range of possible answers is listed, there is the problem of respondents having to live with a forced set of choices. Second, there is the question of how reasonable or unreasonable the responses are. Twenty percent of the respondents gave more than one response even though they were asked for a single response, but the range of answers does not seem unreasonable. Third, there are some dramatic differences in responses by respondents' level of education, with percent responding ''don't know'' inversely related to level of education. Whether this indicates that college-educated or grade school-educated individuals are more knowledgeable, I leave to you. The college-educated group responded somewhat more specifically, with a larger proportion of their responses being "government overspending," "consumer overspending," and "fuel prices." Right or wrong, these answers are more specific than the blanket response "poor government planning."

In the same poll people were asked, "How, in your opinion, should inflation be dealt with?" The responses are shown below:

TABLE 3

Dealing With Inflation

"How, in your opinion, should inflation be dealt with?"[a]

	Price Controls	**Wage/ Price Controls**	**Cut Gov't. Spending**	**Consumers Spend Less**	**Cut foreign Aid/ exports**	**Gov't. control Businesses**	**Wage Wage Controls**	**Others**	**Don't Know**
NATIONAL	13%	12%	8%	8%	5%	4%	3%	23%	36%
EDUCATION									
College	11	14	14	12	4	5	3	27	24
High School	15	12	7	7	4	3	23	36	
Grade School	12	7	5	5	4	2	1	17	50

Gallup Opinion Index, No. 113, November 1974, Princeton, New Jersey. Reprinted with permission.

In this instance responses were spread more equally across the various methods, fewer multiple responses occurred, and "don't know" responses came from more than one-third of all respondents. Of the responses, 28 percent called for price and/or wage controls which combined with "government control of businesses" to yield a total of 32 percent.

The "don't know" responses to this question declined with increased educational level, and alternatives to wage/price controls were much more likely to be considered by the college-level group. Only a month later (October 1975) when people were asked in a forced choice to indicate whether wage/price controls should be put back into effect, 64 percent favored and 36 percent opposed (*Gallup Opinion Index*, No. 113, November 1974). Again, opposition rose with educational level. Obviously, no firm judgment can be made about these results without introducing one's own value judgments, unless a consensus existed (it did not) among economists about the advisability of reimposing controls.

Another opportunity for people to demonstrate their powers of economic analysis came in an August 1975 poll when they were asked a hypothetical question.

TABLE 4

Political Candidates

("If two candidates, running for Congress from your district, had these two different views, which candidate would you prefer?" Respondents were handed a card with these two positions: Candidate A—Candidate A says we should cut government spending on social programs and try harder to balance the U.S. budget. Candidate B—Candidate B says the government should spend more money to create employment and spur public buying.)

	Candidate A	Candidate B	Undecided
NATIONAL	42%	46%	12%
EDUCATION			
College	47	46	7
High School	42	47	11
Grade School	38	43	19

Gallup Opinion Index, No. 124, October 1975, Princeton, New Jersey. Reprinted with permission.

Because of the value judgments than can enter into respondents' responses, results from this question are not clearcut. Candidate A could be viewed as concerned with restraining inflationary forces, whereas Candidate B could be viewed as concerned with reducing unemployment. But Candidate A also suggests value judgments about the size of government expenditure and "social" programs; the idea of balanced budgets, as economists have long pointed out, is not essential for its own sake. Similarly, Candidate B may point to expanded roles for government programs. This means that any interpretation of the public's analysis of policy with respect to aggregate demand is clouded by other considerations which are not easily separable.

Self-Interest (Question 4)

Another type of question asks peopel how they would respond to a particular situation without regard to the favorableness of the situation. The results indicate the importance of self-interest in economic behavior. Whether this self-interest evolves from one's participation in the economy or through formal or informal study is not clear.

Take the situation in which people are asked how their automobile use will be affected by possible price increases of gasoline. The data presented indicate that, overall, people are sensitive to price changes. Because the results are not presented by respondents' educational level, we cannot observe how different subgroups of the population respond. However, it is apparent that people see themselves responding in reasonable ways. The table below is only one of several examples which illustrate this point.

TABLE 5
Price of Gasoline

("If the price of gasoline were to go up (READ AMOUNT) a gallon, would you be likely to use your car as much as you do now, a little less often, or not at all?")

	Price Rise Per Gallon				
	10¢ %	**20¢** %	**30¢** %	**40¢** %	**50¢** %
Use Car:					
As much as now	54	35	24	22	22
Little less often	34	32	25	15	11
Not less often	10	28	41	48	46
Not at all	1	3	8	13	17
Not sure	1	2	2	2	4

The Harris Survey, August 4, 1975. Copyright Chicago Tribune. Reprinted with permission.

Attitudes (Question Type 7)

Because we focus heavily on cognitive learning in our teaching, attitudes receive less attention even though they are an important part of the educational experience. Attitudes reflect some ultimate judgment or evaluation; they go beyond the simple matter of value judgments.

The nature of attitudes is reflected by questions asked recently on Americans' confidence in "the American economic system, free enterprise." Over 40 percent of the respondents, as shown below, indicated some, very little, or no confidence in the system.

TABLE 6
Confidence in American Economic System

	Great deal, Quite a lot	Some, Very little, None	No Opinion
NATIONAL	54%	42%	4%
College background	70	29	1
High school	53	44	3
Grade school	38	47	15

The Gallup Poll, July 10, 1975. Princeton, New Jersey. Reprinted with permission.

Grade school educated respondents were least able or willing to offer an opinion. Those expressing the most confidence were people with a college background and those with the least confidence (about half as many) had the lowest educational background. One might argue, however, that the college trained group gains the most from the system and naturally tends to favor it. Hence, self-interest clouds the determination of attitudes.

Economic Literacy Data: Conclusions

This effort to give the flavor of available data on economic literacy offers both reassurance and discomfort. It is reassuring to know that people do seem aware of many economic issues and their conclusions about issues often make sense. On the other hand, inadequate factual knowledge can seriously affect many judgments people make on economic issues. The conclusion is much the same as that identified at the beginning of this paper—overall there exists a kind of muddled understanding of economic issues, an understanding that must be largely intuitive because of the limited exposure of people to any economics instruction. We cannot say that most people are literate, but neither can we conclude that they are grossly illiterate.

One other source of survey information, the *National Survey on the American Economic System* sponsored by the Advertising Council in 1975 requires brief mention. This survey went into much greater depth and employed open-ended questions to a much greater degree than other public opinion surveys. The scope of the questions was wide, covering the nature of economic systems, the role of specific groups in the economy, the respondents' view of regulation, profits, dividends, etc. Finally, the results were presented not only for the general population but also for special population groups (businessmen, educators, clergy, etc.) and were further tabulated by sex, age, race, education, etc. The authors of the report conclude:

> *Economic understanding of the American public is incomplete and fragmentary. Few adults are highly knowledgeable and few are totally uninformed. Most of the population discuss economic concepts in general, even vague, terms. Even the best educated groups and among those who are directly involved in the business world, there are deficiencies in information, albeit to a smaller degree than in others (National Survey on The American Economic System, The Advertising Council, New York, 1975).*

The only caution I would add is that the Advertising Council survey tends to focus more on formal knowledge of the system than on what might be done in particular situations. Other polls may be more informative on the latter. In any case, the conclusions about the level of economic literacy do not differ greatly.

A NEW "TASK FORCE" REPORT

Important new work is underway that may help us get a better grasp of the elusive "economic literacy." Several years ago the Joint Council on Economic Education decided the time had come to reappraise and refocus its efforts to improve the teaching of economics in the nation's elementary and secondary schools. Not only had the Joint Council already completed a major effort through its DEEP program, but it recognized that in the years since the 1961 Task Force Report changes had occurred in the discipline of economics, in the economic problems receiving attention, and in the approach taken by economists to the teaching of economics. This led to the development of the Master Curriculum Project whose purpose is to give new impetus to the teaching of precollege economics.

The first and perhaps key element is preparation of what amounts to a new Task Force Report, a report that while building on the original report takes account of what has been learned in the past 15 years and sets the course for economic education through the rest of the 1970s and into the 1980s. A central concern in this now almost completed report is defining economic understanding or economic literacy. The committee drafting this report has started with the belief that people should be equipped to understand several broad classes of economic issues and be able to reach judgments about the effects and/or advisability of economic actions and policies. The committee also recognizes that these issues will be encountered by isolated. As an individual gains experience, the separate steps will gradually merge together into a single almost instinctive process. With this approach, we think some of the mystery about what constitutes economic understanding will disappear.

As a committee we have made a special effort to identify the separate components of economic understanding; we call these the major elements. This step is essential because we know it is usually easier to learn and apply a broad concept if various steps in the reasoning process can be isolated. As an individual gains experience, the separate steps will gradually merge together into a single almost instinctive process. With this approach, we think some of the mystery about what constitutes economic understanding will disappear.

We have identified six major elements of economic understanding. They are as follows:

1. *Identifying the Issues*. This calls for an ability to recognize that many current issues have important economic dimensions and consequences and that it is important to distinguish between the positive and normative aspects of these situations.

2. *Practicing a Reasoned Approach*. This represents a reworking of the approach outlined in the 1961 Task Force Report; it calls for a systematic method in thinking about economic issues—one that examines the relationship between means and ends, the effect of alternative choices, the process of reaching one's own judgment on issues, and so on.

3. *Possessing an Overview of the Economic System*. This provides a broad framework which helps people sort economic issues into several broad classes—the basic economic problem of scarcity and choice, resource allocation and the distribution of income, and economic growth and stability.

Taken together, these three elements help move individuals to the point where they can bring more detailed information and knowledge to bear on economic issues.

4. *Understanding the Basic Concepts, Including Economic Concepts and Various Statistical Concepts*. This element is central to the framework because we emphasize the need to concentrate on teaching a limited number of important concepts and to help insure that students have a firm grasp of these concepts. We have selected 24 basic economic concepts and six statistical concepts. Some readers of our document will be pained to find familiar concepts either omitted or given a less than first-rank priority. Others will note that the absence of some concepts reduces the range of economic issues that can be addressed. Offsetting these criticisms is our belief that we can identify the most powerful concepts and those which have the most universal applicability. By concentrating on these concepts we can achieve the greatest return on the resources invested in economic education.

5. *Utilizing Criteria for Evaluating Economic Actions and Policies*. This element, while overlapping somewhat with the reasoned approach, provides a variety of measuring sticks against which different economic actions and policies can be evaluated—efficiency versus equity, growth versus stability, freedom of choice versus security, and so on. We recognize that ultimately any judgments people make will in part reflect their values, but we hope that explicit attention to these criteria will sharpen students' abilities to analyze economic issues and will highlight the role of their own values in this process.

6. *Applying the Elements of Economic Understanding*. The real test of economic understanding lies in the ability to combine all the elements listed above, so that actual economic issues can be explored intelligently by individuals in their various activities and roles. We develop a categorization of news reports on economic issues and illustrate what concepts are most appropriate for specific news reports within each category. We also indicate with illustrations how all the elements can be applied to several specific economic issues. We believe students must be provided considerable experience of this kind to acquire facility in the most difficult of all tasks, putting all of one's knowledge to effective and practical use.

This report does not attempt to recast the elements of economic understanding into an operational measure or set of measures for assessing economic literacy. But the elements can be transformed without great effort. This requires translating each element into a statement of expected student competencies. Here is how they might appear.

> *Element 1*. Students must be able to distinguish economic issues from other kinds of issues.
>
> *Element 2*. Students must be able to indicate the various steps in practicing a reasoned approach.
>
> *Element 3*. Students must be able to identify the broad outlines of the economic system and recognize the interdependencies in the system.
>
> *Element 4*. Students must be able to correctly articulate basic economic concepts.

Element 5. Students must know the criteria for evaluating economic actions and policies and recognize the tradeoffs which they entail.

Element 6. Students must first be able to apply the various elements listed above to reach an understanding of everyday economic issues and then be able to make personal judgments about the issues.

Obviously, much work is needed to complete details of the testing procedures and the specification of competency levels required to demonstrate different degrees of economic literacy. This work must also recognize that the elements reflect various levels and kinds of cognitive learning, ranging through most of Bloom's taxonomy. Once this is done, the most effective ways of teaching the elements of economic understanding and the appropriate grade placement of the material must be worked out. Only in this way can we hope to help students develop the elements of economic understanding which will enable them to move out into the world of work and advanced schooling reasonably well equipped. This competency will be demonstrated by students' ability to apply Element 6 to a variety of issues they face in the future.

WHERE DO WE GO FROM HERE?

Because there is so much we do not know, it seems wise to forego any long list of recommendations and to indicate instead the major areas of ignorance and concern. We hope others will be stimulated to try to fill these knowledge gaps.

What is an appropriate definition of economic literacy?

When we mention economic literacy or economic understanding, what do we mean? Exactly what knowledge and skills are we concerned about helping people develop so they can think about and act intelligently on economic issues? Our forthcoming JCEE report goes farther, I believe, than any prior effort in identifying the component elements of the concept of economic understanding and in suggesting how these elements can be brought together for the achievement of greater economic literacy. Whether we have provided enough detail in our applications and whether there are enough different applications is a major concern. The work of the curriculum development groups should highlight any deficiencies and give us a chance to make appropriate revisions. In the meantime, there is no reason why others should not devote time and effort to the task of defining what we are trying to produce through economics instruction.

How useful are existing measures?

In fact, we have no instruments which purport to measure economic literacy. The standardized tests measure certain types of achievement but how closely these achievements reflect what might be called economic literacy is not clear. The data from public opinion polls have never been sorted out and analyzed with any care to determine what kinds of knowledge and attitudes they reflect. Only recently have more probing surveys of people's economic knowledge been undertaken; these have yet to be evaluated. Much work must be done to determine how to make effective use of data which already exist and are collected regularly.

Can we devise an effective measure of economic literacy?

What is the likelihood of translating a definition of economic literacy into operational terms which will allow us to measure the behaviors exhibited by people and reach some judgment about their levels of economic literacy? In our JCEE report we have not developed such a measure or measures, but this does not mean that the task is impossible. On the other hand, it will not be easy to develop measuring instruments to reflect what is ultimately a rather subtle mental process.

What explains the low level of economic literacy?

What accounts for the low level of economic literacy among people who have had some exposure to economics? Is it the subject, or a belief that economic literacy is not of great importance or value? I am particularly intrigued by the possibility that the latter explanation is the most important. If there really is deficient demand for the subject, then all efforts to improve the supply-side capability of economic education will miss the mark. This suggests that the links between the so-called "citizenship economics" and "personal economics" deserve much more attention.

Second, what accounts for the low level of literacy among those with no exposure to economics? Is it because their general literacy is low, because their informal education received via mass media is so weak, or because they too have made quick benefit-cost calculations which indicate there are better ways to spend their time? Again, we know almost nothing about the nonformal methods of economic instruction and the way in which these methods might help to overcome the resistance of potential economic education consumers.

What are the links between general and economic literacy?

Our effort to set forth the elements of economic understanding, combined with the data from the National Assessment studies, suggests that general literacy and economic literacy go hand in hand. By general literacy I refer not merely to the ability to read and write but rather to the whole range of basic skills. The usual practice in schools has been to develop the general literacy of students and then to introduce economics. Instead, perhaps both kinds of knowledge and skills should be developed simultaneously. It might even be possible to test this hypothesis by comparing schools in which economics is introduced into the curriculum in the early grades with those where it comes much later.

# # #

Finding answers to these difficult questions poses a stern challenge for economists, economic educators, and teachers of economics in the nation's schools. We must begin seeking the answers immediately, because a clearer vision of our task is essential if we hope to increase the effectiveness of our efforts to raise the economic literacy of our youth and and eventually all Americans.

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A Response to "The State of Economic Literacy"

Leonard Silk

Reacting to Hansen's conclusion that there is no operational definition of economic literacy, this respondent suggests that perhaps such a definition is nearly impossible—that differing points of view may make one man's "economic literacy" another's "economic illiteracy." Silk wonders, as does Hansen, whether the public's lack of greater economic literacy is not based on a decision to leave economics to the experts. But the respondent believes economic educators should not give up on efforts to increase literacy, and he applauds attempts to find better ways to increase students' interest in and understanding of economics.

It is rather remarkable, as Professor Hansen points out, that after scores and scores of textbooks have been written, an endless list of speeches and conferences on economic education have been held, and several campaigns have been launched by various groups to stamp out economic illiteracy, no useful definition of economic literacy appears to exist. Is the term "economic literacy" merely a cliché, designed to serve some ideological purpose? Indeed, some business groups, such as the Advertising Council, the Business Roundtable, and the National Association of Manufacturers, do appear to associate "economic literacy" with fairly specific doctrines and beliefs of which they approve and "economic illiteracy" with those of which they disapprove. I am afraid that, once we get down below the level of purely statistical facts, one man's economic literacy is another man's illiteracy.

Even at the factual level, there are occasions for disagreement. Professor Hansen correctly notes that the public opinion pollers commonly ask about profit per dollar of sales rather than profit per dollar of capital invested. In fact business spokesmen, exposing the public's economic ignorance about profits, also generally use figures on profit per dollar of sales, although this is a

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misleading concept that varies enormously from industry to industry. A defense producer, using little capital of his own, may have a very slim profit on sales but a very large return on his own invested capital. A retail chain may have a low profit on sales but a much bigger profit on invested capital than some manufacturer with a much higher profit on sales. Similarly, groups trying to drive home the importance of higher profits may employ time series to show falling profits that end at the bottom of a recession; with profits turning up this year, probably by 25 percent or more, I shall be interested to see how quickly those business groups or securities industry associations who have used such pessimistic profits series will shift to the new terminal date for profits.

None of this, I hasten to add, is to imply that I think measures of profits or explanations of the role of profits in a capitalist system are merely matters of self-interest and biased opinion. I am only trying to warn against the misuse of economic data or concepts, whether in the name of further economic literacy or some other worthy cause. That misuse is by no means limited to business; for their own purposes, labor, agriculture, and even the political leaders of our government or other governments also sometimes bend data or principles to suit their purposes. I probably do myself—for which I gravely apologize, though I do insist my sins are unconscious and therefore all the harder for me to correct.

Putting aside for the moment what economic literacy is, Professor Hansen next asks what explains the public's lack of greater economic literacy? Well, he knows a bad situation when he sees one, and I think he is right to get on with the answer to this ill-defined but obviously deplorable state of public ignorance.

He reasonably suggests that perhaps the public has made the sensible decision to leave economics to the experts. But the public is justifiably upset when the experts fall to fighting among themselves and when, even worse, the state of the economy gets badly fouled up, and the experts (some of whom are partly responsible for having caused the foul-up) go on fighting about how to cure it. If any group's performance is bad, it loses legitimacy. This is true for economists just as it is for corporations or governments or labor unions or any other institution. But no group likes to hear this about itself. And every scientific group insists that its failures are creative and its internal quarrels are always at the frontier of knowledge; behind the front lines, there is, presumably, peace and good order. Economists agree about an infinitely larger proportion of things than they disagree about. Perhaps, but I really wonder whether this applies, on important issues, to such economists as Friedrich von Hayek and Gunnar Myrdal, Nobel prize-winners both, or Alan Greenspan and Gardner Ackley, Presidential economic advisers both. Recently in Congressional testimony Mr. Ackley called the Ford Administration's macroeconomic propositions for curing unemployment and inflation "simply fraudulent economics." As my colleague, Edwin L. Dale, has reported, Mr. Greenspan for his part thinks the economic models employed by economists like Mr. Ackley "don't—and can't—reflect this sort of thing"—that is, the perverse effect of fiscal and monetary policies designed to raise employment and output faster.

Since a national Presidential campaign is likely to be fought this year over precisely the issues of unemployment and inflation and how best to get the economy back to full production and by when, it is difficult, to put it mildly, for the voting public to entrust the resolution of such issues to the experts, especially such bitterly opposed experts. The division of labor, which works reasonably well when it comes to pin-makers and paleographers, just does not solve the problem in political and social economics.

Professor Hansen makes the useful point that the trouble may be not on the supply side of economics instruction but on the demand side. The public wants to read Sylvia Porter but not Paul Samuelson. To be sure, Professor Samuelson's sales are still well ahead of Miss Porter's, but that presumably is a consequence of the high regard in which Mr. Samuelson's book is held by many of his fellow economists, with their captive student populations, rather than of voluntary consumer demand itself. Possibly economists do give needlessly short shrift to consumer or personal economics; there are plenty of rich cases, which can be used to illuminate microeconomics. But I do not think economists should really be in the business of telling you which life insurance policies to buy, or for that matter what toothpaste to use, where to spend your summer or winter vacations, what to drink *après*-ski or *après*-tennis, or similar matters involving choice and uncertainty, the bailiwick not only of economics but practically everything else.

I am glad, nevertheless, that my own Wednesday column runs on the business and financial pages of the newspaper; when I discourse about difficult matters of economic analysis and policy, I can be pretty sure those readers with desperately serious interests in the stock and bond markets as well as their own businesses, will see the relevance of what I am writing about—and I try to give them a clue myself, if it is not obvious. It is also pleasant from time to time to write for the Week in Review or Magazine or Op-ed page, but I suspect such economic pieces have less real impact. Editorials, however, are another matter. Their art is one of preachment and persuasion, and I suspect it is the political-social-moral content of the positions expressed, rather than their economic-logical rigor, that sways readers to support an economic policy position—if anything does.

Professor Hansen does not sound wildly optimistic about the chances of improving economic literacy soon, although he is involved in playing the game and, I am sure, doing his best. I agree with him on both counts. It is really difficult to understand why it is so hard for most people to learn economics in more than the most superficial sense, but it is. I have spent more years than I like to remember in economics journalism and economics education, as well as in government, and I would have to confess that I think the level of public economic literacy or understanding is no higher than when I began. Does this mean that I have had a wasted life? I hope not. I fear that it is essentially the same in every hard field; every day a new world is born, every day you face a new public, everyday Sisyphus starts rolling the stone up the mountain again. If

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you do not like this mountain, find another.

So let us, by all means, have a new Task Force Report. Let us, as Professor Hansen suggests, do a better job of identifying the key economic issues, use a better reasoned approach, give students a blindingly clear overview of the economic system, teach them the basic economic concepts, improve their command of statistical facts, give them means of applying criteria for evaluating the impact of economic actions and policies and experience in applying these concepts to the issues they find presented in newspapers or on radio and television. Let us do the same for President Ford and for Mr. Greenspan, as well as for our wives or husbands, and for the Advertising Council *The Reader's Digest*, the N.A.M., and the A.F.L.-C.I.O., the milk producers, Lockheed Aircraft, and everyone else. And let us, as Professor Hansen brillantly proposes, make everyone more literate as a prior condition to their becoming more economically literate.

Do I have a better answer, some secret up my sleeve? At this level of generality, certainly not. I think the better answers are to be found in the specifics—better understanding on one's own part, then better articles, better books, better lectures, deeper concern about the real issues themselves not something called "issues" in a vaguer, more abstract sense. I am sure there also are better ways of reaching students, and getting them to teach themselves, and teach you. But that is not my area of professional competence. I used to enjoy teaching, and watching dawn breaking; but that is a magic that cannot be generalized into formulas. The main thing, I believe, is caring oneself—caring about the subject matter and the importance of communicating it to someone. One does it because it is fun, because it is a living, and because one gets something back from an audience or readers when it works—and because it helps solve a serious social problem, when it does.

I am glad Professor Hansen and all of you are still involved in this cause. Carry on!

Part III Issues in Economic Education

Research in Economic Education at the Precollege Level—*George G. Dawson*
  Response—*Dennis J. Weidenaar*
  Response—*Robert J. Staaf*

Economic Education for Ethnic Minorities—*James A. Banks*
  Response—*Frank W. Gery*
  Response—*June V. Gilliard*

Male-Female Differences in Precollege Economic Education—*Helen F. Ladd*

Research in Economic Education at the Precollege Level

George G. Dawson

This paper is based on the author's survey of 791 studies relating to precollege economic education. To classify the studies, the author uses three categories: Type I, simple fact-finding projects; Type II, more complex evaluation studies including statistical analysis; and Type III, experimental studies involving researcher control. Focusing primarily on Type II and Type III studies, the author discusses research findings relating to both the elementary and the secondary level. From the findings, the author makes recommendations for future research and curriculum development in economic education at the precollege level.

Although one study dates back to 1914, research in the teaching of economics in elementary and secondary schools is a relatively recent phenomenon. Only four studies devoted exclusively to the elementary level were completed before the 1960s. While little was done at the secondary level before 1920, there was a surge of interest in the 1930s (with at least 44 studies completed in that decade) and again in the 1950s. However, it is during the past 15 years that most studies have been made. Probably the growth of the Joint Council on Economic Education's network of affiliated economic education councils and centers largely accounts for this development.

As of August 1975, at least 791 studies relating to precollege economic education have been completed or are in progress. Most (541) deal with the secondary level exclusively. About 100 deal with the elementary school level, while some 64 cover both elementary and secondary education. Another group of about 82 studies combine some aspect of secondary economics education

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with college or teacher education in that subject. The quantitative importance of each group is below:

Elementary level only — 13 percent
Elementary and secondary combined — 8 percent
Secondary level only — 68 percent
Secondary with higher education — 11 percent

CLASSIFICATION OF STUDIES

In compiling a card file on these studies, the term "research" was broadly defined by this writer. The studies range from informal efforts involving little more than "nose-counting" to highly structured projects using the most sophisticated techniques of statistical analysis. Our purpose was not to quibble about what should be classified as research and what should not, but to identify any study that might in some way add to our knowledge about the teaching of economics. The studies could be categorized in many ways—for example, topic, subject matter, grade level, geographic area, or research technique employed. However, for this paper the studies have been classified into three types.

Type I studies are fairly simple fact-finding projects, requiring little or no statistical analysis beyond the computation of percentages or ranks. Data on the number of schools in a particular state or region offering economics, surveys on the economics training of teachers responsible for economics courses, and lists of materials used to teach economics are among the studies which have been classified as Type I.

Type II studies are more sophisticated in design and in the type of statistical analysis required. In a Type II study the researcher might analyze an existing economics program to determine how effective it is in increasing pupil knowledge as measured by a standardized economics test, or the researcher might help develop and evaluate a new program or set of materials. Some Type II studies attempt to find out how much pupils in a given area already know about economics and how their knowledge compares with that of some other pupil population. Some sort of statistical significance test is often included.

Type III studies are characterized by more rigor and better investigator control than Type II studies, although no clear line separates the two. In Type III studies researchers do not merely accept an existing situation and evaluate or analyze it; they exercise strong control by setting up an experiment and establishing conditions for study. Researchers do not simply design a means of studying, analyzing, and evaluating an established situation, but actually manipulate a learning environment so that subjects conform to their preestablished research scheme. This category includes studies involving a controlled experiment in which the researcher attempts to isolate particular variables and determine their effect on pupil learning, as when one group of pupils uses a programmed textbook while a control group uses a regular text. Type III studies often require a more complex research design and more sophisticated statistical techniques than Type II studies, but this is not necessarily the case.

Statistically, 24 percent of the studies have been categorized as Type I, 52 percent as Type II, and 24 percent as Type III. Not everyone will agree on the categories to which particular studies have been assigned. In certain respects, the categorizations are arbitrary because some studies have characteristics of all three types. Nevertheless, I found the categories useful in determining which studies to include in this paper.

The breakdown of the studies' sponsorship is as follows: doctoral studies—24 percent; masters theses—25 percent; all other—51 percent. It is interesting to note that most studies were not done to earn the researcher a higher degree. Instead most were sponsored by persons or groups interested in learning more about the teaching of economics at the precollege level to strengthen their own efforts or the efforts of others in the field. The "all other" category, then, includes college professors, precollege teachers or administrators, university research bureaus, the Joint Council on Economic Education and its affiliates, and such well-known organizations as Educational Testing Service, Opinion Research Corporation, and The Psychological Corporation.

Part of the studies reported in this paper can be found in publications such as *The Journal of Business Education, Social Science Record, American Economic Review, Social Education, The Journal of Economic Education, Child Development, Journal of Experimental Education, Journal of Educational Research, American Behavioral Scientist, Journal of Social Psychology, Elementary School Journal, Educational Leadership, The Journal of Consumer Affairs, The American Economist, Educational Forum,* and *Quarterly Journal of Economics.* Many, however, are unpublished theses, papers, and reports.[*]

For purposes of this paper, less attention has been given Type I studies than studies in the other categories. Although many Type I studies are valuable and provide useful information to economic education specialists, potential supporters of the economic education movement most often ask for the kind of data resulting from the evaluation projects classified as Type II and Type III. They want to know how effective previous economic education efforts have been. Thus, this paper stresses the Type II and Type III studies which make up about 76 percent of the total.

Discussion of reported studies is divided into elementary and secondary level research. About 64 of all the indexed studies focus on both elementary and secondary levels, but at least 44 percent of these are simple fact-finding surveys (Type I studies) confined to one state or locality. Another 30 percent of these elementary/secondary studies are Type II, but many of these deal with the teaching of a single topic, such as consumer economics or conservation, and are of little general interest. The remaining 18 percent are Type III studies, and those of more general interest are reported in either the elementary or the secondary section of this paper.

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[*] For a comprehensive list, see George G. Dawson, *Research in Economic Education: A Bibliography* (New York: NYU Center for Economic Education, 1969) with 1970, 1971, and 1972 supplements. The author also has a card file on more recent studies.

RESEARCH AT THE ELEMENTARY SCHOOL LEVEL

Aside from one study published in 1942 and three in the 1950s, all research at the elementary level has been done during the past 15 years. Most of it can be categorized as Type II or Type III research. Thus, one of the great needs at the elementary level is for Type I fact-finding studies. It is impossible even to make an "educated guess" as to the number or percentage of schools which provide some sort of economics instruction for elementary pupils. Yet, evaluation studies show that elementary children *can* learn some basic economic concepts and that economics projects can be enjoyable experiences which enrich the elementary curriculum.

Research Findings

Although there has been considerably less research at the elementary school level than at the secondary, there are some important findings which emerge from the studies which have been conducted. The findings which seem most germane for economics education are discussed below.

Children can learn some basic economic facts and concepts.

This conclusion was first established by Garney L. Darrin (1958) in the late 1950s. Darrin evaluated pupil learning of 28 topics included in the curriculum from kindergarten through sixth grade and found that 19 of those topics were successfully taught in *all* grades. William Jefferds (1966), on the other hand, did not find that pupils using the economics materials developed by Lawrence Senesh were effective, but teacher preparation may have been a factor. Foote and others (1967), using different evaluation techniques with pupils in the Montclair, New Jersey school system, concluded that the Senesh materials were effective with elementary pupils whose teachers had been trained in their use. Robinson (1963) established that some economic concepts can even be taught to children in kindergarten. Four years later, Sol Spears (1967) completed a study purporting to prove that first graders can learn economics and that exposure to formal economics instruction is effective with these children regardless of the methodology used.

Not satisfied with their predecessors' work, particularly with the test instruments used, James Shaver (1966) and Guy Larkins (1967, 1968) of Utah State University produced a better test for primary children; its use confirmed that children can learn some of the economic concepts found in the Senesh material. Building on the work of others, Donald Davison and John Kilgore (1971b) created the *Primary Test of Economic Understanding* for use in grades two and three. Preliminary work with this test again confirmed the ability of children to learn certain economic concepts in grades two and three (Davison and Kilgore 1971a).

Any remaining doubts appear to have been removed by a complex evaluation study made by the Joint Council on Economic Education during the 1972-73 school year—a study involving 75 classrooms in 24 communities in various parts of the United States (Dawson and Davison 1973). Research involving children in upper elementary grades (four, five, and six) also showed that economic concepts can be learned. This has been confirmed by The Industrial Relations Center of the University of Chicago (Rader, et al., n.d.; Rader et al., 1967), Sulkin and Friedman (1969), Richard L. Wing (1967), Marilyn Kourilsky (1974), and the Joint Council (Dawson and Davison 1973).

Older children learn more than younger children.

It is not surprising to find that—other things being equal—the higher the grade level the better the understanding of the topic. This was established by Darrin (1958) as well as several other researchers. The relationship between economic knowledge and pupil grade level was the focal point of a study made by Richard B. McKenzie (1969), and the study confirmed the generalization that older children learn more.

Teachers trained in economic education are more effective than untrained teachers.

The Foote study (1967) suggested that teachers given special training in teaching economics at the elementary level were more effective than those not receiving training; however, poor controls and an atypical research design precludes using this study alone to establish the point. The best evidence of the generalization was provided by the Joint Council's study (Dawson and Davison 1973) of the impact of workshop training on participating teachers and on the pupils of those teachers. Using 34 experimental and 45 closely matched control teachers and involving some 2,000 pupils, the Joint Council study established that the pupils of teachers who attended economic education workshops indeed performed significantly better on standardized economics tests (pretest-posttest design) than did the pupils of teachers who had not attended workshops.

There is a relationship between pupil socioeconomic background and economic understanding.

McKenzie (1969) found that children of professionals did better on his economics test than did the children of nonprofessionals. That children of higher socioeconomic background know more and learn more was also established by Spears (1967), Davison and Kilgore (1971a, 1971b), the Industrial Relations Center (Rader et al., n.d.; Rader et al. 1967), Sulkin and Friedman (1969), and the Joint Council on Economic Education (Dawson and Davison 1973).

Sex is not significant in elementary students' learning of economics.

Studies at the college level frequently show that (for some mysterious reason) women do not learn as much as men in the college introductory economics course—other things held equal. This does not seem to be the case in the elementary grades. Girls do as well as boys in most cases.

A variety of methods and materials can be used with equal effect.

B.J. Dooley (1968) compared fourth graders being taught by the lecture method with an experimental class using the simulation game *Market*. There was no significant difference between the gain scores of the two groups, although the children enjoyed the game more than the conventional mode of instruction. Dennis Lupher and Kenneth Light (1971) tested sixth graders using a television series, "Adventure: Economics," and control classes learning economics by different means. The mean score of the experimental group (a "posttest only" design was used) was higher than that of the control classes but was significant only at the .10 level. Three computer-based games for sixth graders developed by Richard Wing and others (1967) proved to be as effective as conventional classroom instruction. Item analyses, however, revealed that some things were learned better by the experimental group while others were learned better by the control groups.

Pupil academic and reading abilities are important factors.

As expected, many studies have shown that students who score significantly higher on standardized intelligence or academic ability tests (such as the Flanagan *Test of General Ability*) and who achieve high scores on reading tests earn higher gain scores in economics (Wing 1967; Davison and Kilgore 1971a and 1971b; Rader et al., n.d.; Rader et al. 1967; Sulkin and Friedman 1969; Lupher and Light 1971; Dawson and Davison 1973).

Pupils retain some of their learnings, at least for a year.

What elementary pupils learn in economics lessons is not immediately forgotten. Some evidence of this was obtained in the Joint Council study (Dawson and Davison 1973), but the hypothesis was tested under highly controlled conditions by Rader and others at the University of Chicago (Rader et al., n.d.; Rader 1967). Pupils exposed to economics instruction not only retained what they had learned (with some loss) for about a year, but did better than control pupils in future economics lessons. Much more research needs to be done on this, particularly to see how much is retained after two or more years.

Maturation may be a factor in economic knowledge.

McKenzie (1969) and Rader (1967) have established that there is a relationship between grade level and ability to learn economics. One of Rader's studies (1967) suggested that maturation alone may affect test performance; it is possible that by simply maturing, pupils who have *not* been exposed to formal economics instruction will do better on the posttest than on the pretest after a period of several months. However, further research is needed to confirm this.

If the maturing effect is confirmed, researchers will need to account for maturation in their testing programs. For example, if it is found that children can gain three points on a standardized test without having had economics instruction over a period of, say, six months, then an absolute gain of seven points ought to be reduced to four. This would give a more realistic measure of the impact made by instruction.

Relating economics to student needs and interests yields positive results.

Many teachers assert that this proposition is self-evident, but little controlled research has been done to test it. Kourilsky (1974) opined that the pupils participating in her "mini-society" did better than the control students because of the "need to know" factor. The pupils had to learn many economic concepts to function successfully in a highly competitive classroom economy.

Elementary school teachers learn economics just as well when economics instruction is combined with pedagogy as they do in "pure" economic courses.

The Joint Council study (Dawson and Davison 1973) showed that teachers attending a workshop in which teaching techniques were combined with economic theory learned as sch, as measured by a standardized economics test, as did teachers in workshops which provided separate treatment of methodology and economic principles. This has also been established by Loren Guffey and Charmayne Cullom (1973) in studies conducted at the State College of Arkansas in Conway. Further support is provided by Dennis O'Toole and Ann Coates (1974) in an experiment undertaken at Virginia Commonwealth University.

Economics is not adequately treated in most elementary school social studies textbooks, and the reading levels in most books are too high.

Although textbooks have improved greatly over the years, many remain deficient in terms of economics coverage, and many contain gross errors. This was established by Davison, Kilgore, and Sgontz (1973). Research by C. Kenneth Murray (1975) showed that the readability level of textbooks designed for grades four, five, and six is seventh to eighth grade and that third-grade materials have a grade level readibility of 3.9.

Conclusions and Recommendations—Elementary

Research and evaluation at the elementary school level answer many questions but raise many others. The implications of the work done thus far seem to be as follows:

- Additional fact-finding studies are needed to determine the extent to which economics is taught in elementary schools, what concepts are covered, what materials are used, and how well prepared the teachers are.
- Children from kindergarten through grade six can learn some important economic concepts. Tests exist to measure economic knowledge at the elementary level. Schools can and should include economics in the elementary curriculum because it can be taught successfully. Pretesting and posttesting should be undertaken, however.
- Other things being equal, pupils at higher grade levels can learn more than those at lower levels. There is a need to determine not only the kinds of concepts that can be understood at each level, but the extent to which each concept can be developed at each grade level. For example, how much more can the average fifth grader learn about demand theory than the average third grader?
- Teachers who are given special training in economic education will probably get better results than peers who are not trained. We do not know, however, how much training is needed. Nor do we know to what extent the training should include "pure" economics as opposed to educational methods.
- A relationship between socioeconomic background and ability to learn economics has been established. Existing tests or new tests should be normed to provide data on various socioeconomic levels. We need to find ways to compensate for the disadvantage which socioeconomic background causes children.
- Because sex does not usually show up as significant in research at the elementary level, there is no need to consider differences based solely upon sex in planning economics programs for elementary school children. Research is needed, however, to determine if boys and girls have different topical interests. For example, are boys more interested in the labor market while girls are more concerned about consumer education? If this proves to be the case, teachers might undertake to eliminate these differences.
- Because many methods and materials have been found to be effective, teachers should feel free to explore a wide variety of techniques. Research should continue, however, to see if some methods have a greater residual impact, arouse more interest, result in greater (or lesser) costs, and so on.
- Academic ability and intelligence, as well as reading ability, are important

variables. Teachers should take these differences into account when planning economics activities, but this does not imply rigid stereotyping of pupils. Special materials might be developed for low-achieving pupils. Further research is needed to determine just how much children at various ability levels can learn and what methods and materials work best.

- Although it has been established that economics instruction does have a lasting effect, we do not know just how much is retained for varying time periods. In particular, we do not know how much is remembered after one year, nor do we know if particular methods or materials have longer-lasting effects.
- While maturation appears to be a factor, we need more controlled research and experimentation to find out just how important this is. Holding everything else constant (if possible), we should try to determine the impact of maturation on test change scores with students at various grade levels and with pupils of differing abilities and backgrounds.
- The fragmentary evidence that motivation enhances learning is not strong enough to be convincing. We need to know just what sort of motivational devices have the greatest effect on children of varying sexes, backgrounds, and abilities.
- In providing economics instruction for elementary school teachers and teacher trainees, better results will be obtained if this is combined with instruction in how to teach economics in the schools. This implies that the instruction be provided by someone trained both in economics and education or by teams of economists and educators who are willing to work together in harmony.
- Textbooks and other materials used in elementary schools must be continually scrutinized and evaluated in terms of their economic content and reading level. Publishers should be apprised of deficiencies, and economic education centers and councils should offer their services to assure proper economics coverage in forthcoming materials. Teachers should be given special training in the use of the existing materials.
- Research and evaluation should be built into every economic education program. Existing tests need to be reviewed continually and revised or updated from time to time. Reading specialists as well as economists, educators, and psychometricians should be involved in test development, evaluation, and interpretation. Because some existing tests were designed for evaluating particular programs and/or materials, they should be used with caution.

RESEARCH AT THE SECONDARY SCHOOL LEVEL

There have been nearly 550 studies dealing specifically and for all practical purposes exclusively with the secondary level. Twenty-six percent of the secondary-level research studies are Type I, 57 percent Type II, and 17 percent Type III. Doctoral research studies account for 26 percent of the titles, while 33 percent are master theses. Overwhelmingly, the secondary studies have been confined to a single state, city, area, or school. This report concentrates on those which seem to be typical, deal with a fairly large population, have been widely replicated, or employ an interesting research technique.

Research Findings

Among the findings emerging from research done at the secondary level, the following seem particularly relevant to future planning for economics education in precollege settings.

High school economics courses are effective in increasing economic understanding.

This conclusion was established by Bach and Saunders (1965), Dawson and Bernstein (1967), Moyer and Paden (1968), and by countless others. Most researchers used the *Test of Economic Understanding* (T.E.U.) published by Science Research Associates in 1963, but other instruments have yielded similar results. In most cases, overall pretest and posttest scores have been used. Gain scores usually prove to be statistically significant. Unfortunately, few researchers have made item analyses. Thus, while there is vast evidence that an overall gain in economic knowledge results from a high school economics course, there is little evidence indicating which facts and concepts are learned and which are not.

College economics students who had high school economics may have an advantage over those who did not study economics in high school.

Dawson and Bernstein (1967) found that students in introductory college courses who had taken high school economics did significantly better on both the pretest and the posttest of the T.E.U. than did students not having taken high school economics. However, the college courses greatly narrowed the gap between the two groups. Using a smaller sample, but taking additional variables into account, Moyer and Paden (1968) basically confirmed this. Phillip Saunders (1970), using an additional test, the *Test of Understanding in College Economics* (TUCE) and more sophisticated statistical analyses, provided further evidence in 1970 of the Dawson-Bernstein claim. However, not all studies have confirmed the assertion that taking high school economics is an advantage for college economics students. In their report, Palmer, Romer, and Carliner (1976) contended that high school economics does not affect college performance. The safest conclusion is that high school economics *can* have an effect, but it is unwise to assume that it will.

High school economics does have a lasting impact, at least for many students and for certain types of economic knowledge.

Saunders (1970) found that high school courses affect performance on the "recognition and understanding" items of the TUCE but appear to have no lasting impact on the "simple application" or "complex application" questions. Like earlier researchers, however, Saunders did not consider the nature of the economics courses taken by the students—a weakness he acknowledged. In a British study, Lumsden (1970) did consider the nature of the high school course taken. Testing 4,700 students in 34 British universities with an instrument similar to the TUCE, Lumsden found a relationship between students' performances in their high school courses and their scores on the TUCE-like *Test of Economics Comprehension* (TEC). The higher the high school grade, the higher the score on the TEC. The elapsed time between taking the secondary course and the college course did not significantly affect performance. There was some evidence that students taking "A-level" high school economics were superior in economics knowledge to those taking the lower "O-level." Although it will not be easy, we need to make similar distinctions in the United States.

Students learn more when economics is related to their interests.

This point was established for secondary students by James B. Nelson (1971) in a doctoral study and in an earlier thesis by Ruth Healey (1967). The finding appears to apply to all levels. Kourilsky's (1974) work confirmed the finding at the elementary level, and the works of Guffey and Cullom (1973) and O'Toole and Coates (1974) concluded the same point with college students and teachers.

Using good materials, students can learn some economics–but they will learn even more if their teachers have been specially trained in the materials' use.

In evaluating Pittsburgh's Developmental Economic Education Project (DEEP), Saunders (1968) found that specially prepared materials can be effective even if teachers are untrained in their use. Students learn more, however, when teachers are trained. In a study involving different materials, Andrew Nappi (1971) confirmed this.

Economics can be taught successfully by integrating it with other subjects in the high school curriculum.

Doelman (1970), in the Lockport, New York school system, conducted a five-year experiment involving 600 students in citizenship, business, homemaking, guidance, industrial arts, and vocational education. Even after one year the students had learned some basic economics. A consistent policy of stressing economics in the various courses raised mean scores each year. Emerson (1970), in the Winneconne, Wisconsin school system, confirmed that economics can be taught in industrial arts courses. Jaeckel (1969) established that it can be taught in bookkeeping courses, and Keith Miller (1970) showed that the American problems courses in Redding, California increased economic understanding. Miller maintained, however, that more was learned in a separate economics course. Highsmith (1974) found a problems of democracy course effective in teaching some economics, but Boddy and Tocco (1974) assert that Florida's Americanism vs. Communism course did not improve economic understanding and that the social studies curriculum was not contributing to the development of economic understanding among Florida high school seniors. Roland Jones' (1971) study concluded that the Delaware business curricula were not providing adequate economics instruction. The reasonable conclusion is that while economics *can* be taught in other courses, it is not safe to assume it *will* be.

A variety of methods can be used to teach high school economics.

Kourilsky's (1972) "adversary instructional model" proved as effective as conventional methods (albeit not *more* effective) in improving economic understanding, and it increased student performance on a critical thinking test. Karen Cohen (1970) showed that the *Consumer Game* is useful in teaching poorly motivated seventh graders consumer education concepts and that it can improve behavior and attendance. Morton and Rezny (1971) of Homewood-Flossmoor High School in Illinois found that teaching in teams and using techniques such as skits, plays, films, programmed materials, simulations, and small group sessions were effective in raising economic understanding. In a carefully controlled study, William Denton and others (1974) found television and programmed instruction to be effective.

Student attitudes and opinions can be affected by economics instruction.

Donald Dowd (n.d.) developed an attitude assessment test and found it possible to measure opinions and attitudes toward various economic issues. Sorensen (1967) found conservative students superior in economic understanding, a phenomenon also discovered among college students (Luker 1970; Scott and Rothman 1975). While the "before and after" research on attitudes and opinions has been done largely at the college level, it seems reasonable to assume that if economics courses can change college students' opinions, they can similarly affect the views of high school pupils. More research is needed.

Teachers who have received inservice training in economic education are more effective than untrained teachers.

Highsmith (1974) established this, as did Andrew Nappi (1971). Becker, Helmberger, and Thompson (1975), in one of the few systematic efforts to evaluate the lasting effects of a DEEP project, showed that teacher training makes a difference and suggested that "slippage" will occur in schools which lose trained teachers. Their findings seem to indicate that it is not enough to launch a DEEP-like program and assume that the momentum will continue. Probably some sort of continuing support, refersher programs for teachers, and efforts to keep the host school up to date are necessary. Teacher training also improves pupil performance in the world of work economic education according to a research team led by William Luker (1974) in Denton, Texas. Furthermore, the pupils of the trained teachers have significantly better attitudes toward nonprofessional work modes.

Sex may or may not be significant in economic learning at the high school level.

In college-level introductory economics courses, males usually do better than females, other things being equal. Some researchers assert this is also true at the high school level, but others have found no significant difference between the test performances of males and females. Male superiority was found in the Bach-Saunders study (1965) but not in the Dawson-Bernstein study (1967), or those of James B. Nelson (1971) and A. Dennis Gentry (1969). Males and females sometimes have different attitudes, however. Luker (1974) found that females had more positive attitudes toward nonprofessional work modes than did males. In a three-year study of college freshmen, Dawson (1966) found that females were far more inclined than males to change their opinions, and at least one other researcher has noted this phenomenon.

There is a relationship between pupil age and ability to learn.

Students achieve higher scores on standardized tests as they advance from lower to higher grades. This has been established by the norm data obtained for the Joint Council's *Test of Understanding In Personal Economics* and the *Junior High School Test of Economics*. Research is needed, however, to learn what concepts can be taught at what grade levels and with what kinds of students.

Class size and school size may be factors in student learning of economics.

Class size and school size may have an effect on economics learning, but the evidence is too sparse to draw a firm conclusion. A study by Gentry (1969) and a report by Dennis Weidenaar (1972) are suggestive.

Scholastic ability, grade point average, socioeconomic level, and enrollment in an academic as opposed to a vocational program may affect student learning of economics.

Students rating high in the first three factors listed, and being in academic as opposed to vocational programs, usually do better in economics than those rating low or being in vocational courses. Many studies have suggested this. Hunt (1968) for example, found that students with high scores on intelligence tests and high ranks in their classes do better in economics than students with lower scores and lower ranks. Linda Alexander (1969) is one of the researchers who has found socioeconomic level significant.

High school social studies textbooks have improved but are still deficient in economics coverage.

The Joint Council's study of junior and senior high school social studies textbooks (Watson et al. 1973) found materials better now than they were ten years ago, but many errors can still be detected and some textbooks are grossly inadequate in economics coverage.

Conclusions and Recommendations—Secondary

- High school courses are generally effective in increasing economic knowledge and understanding, but we need to know more about the nature of the courses, the materials and methods used, and the specific facts and concepts being successfully taught. Furthermore, the old TEU needs to be revised and brought up to date with completely new norm data.

- College students who had high school economics may have an advantage over classmates without the same background, but this advantage ought not be assumed. Colleges might consider setting up special sections for students who had economics in high schools if a good pretest (such as the TUCE or a hybrid TUCE) shows that those students did learn a substantial amount of the material usually included in the introductory principles course.

- High school economics does have a lasting impact but probably not at the higher levels of comprehension. Colleges should administer pretests to all incoming economics students and make item analyses so that the students can be assigned to homogeneous sections on the basis of their existing knowledge and understanding.

- Students will generally learn more if economics is related to personal needs and interests. This does not mean that every course should be confined to consumer education, but it does mean that the analytical tools of economics should be applied to such conerns as a student's career choice. The Center for Business and Economic Education at Empire State College has prepared a paper on methods of doing this.

- Good economics materials can increase student understanding, but these materials will be even more effective if teachers are given special training in their use. Workshop directors should consider methods of integrating the materials designed for student use with the economics instruction they provide for teachers. This has been done successfully at the workshops conducted by the Iowa Council on Economic Education.
- Economics can be taught by integrating it into other high school subjects. Workshops are needed to show teachers how to incorporate economics into history, political science, geography, sociology, mathematics, home economics, and business courses. Also needed are materials along the lines of those developed by the Joint Council to help incorporate economics into American history.
- Many teaching methods can be successful. Continuing research is needed to determine whether a given teaching technique has a greater residual impact, works better with a particular type of student, is more popular with students, or involves a lower cost.
- We know that student attitudes and opinions can be changed and can be measured, but we have hardly scratched the surface in finding out what effect high school courses have on student opinions.
- Special inservice teacher training is effective, but we need to know how long this lasts, how much (if any) ''refresher'' work is needed, and what sort of training works best.
- The importance of sex on economic learning at the high school level is a matter of dispute. This variable should be considered in all between male and female interests. Recent studies made by *Scholastic Magazine* suggest that boys and girls have different interests and aspirations, and it may be that this factor rather than sex, per se, accounts for differences in performance on economic tests.
- We know that as secondary school students mature, they are able to learn more economics. We need better norm data on standardized tests, with breakdowns by age, sex, academic ability, reading levels, socioeconomic background, and geographical area, such as that provided by the current *Junior High School Test of Economics*.
- Then, much more research must be done to find out just what students of varying backgrounds and abilities can learn at each grade level.
- School size and class size are probably not very important factors in economics learning, but future research might include these variables—controlling for all other variables before arriving at conclusions.

- As expected, scholastic ability, socioeconomic level, and grade point averages are important variables in pupil learning of economics.
- Ongoing evaluations of social studies materials, high school economics textbooks, and business education materials should be made. Economic educators need to know what sort of materials are available to teachers and what strengths and weaknesses those materials have.
- Finally, there is a dire need for an operational, observable measure of economic literacy applicable to people at various age levels.

# # #

Although a great many of the studies made at the precollege level are of little value, some excellent research work has been done, and many important questions have been answered. For one thing, we know we are not wasting our time in trying to improve economic literacy at the precollege level. Children and adolescents can learn some important economic facts and concepts. However, we need to know how we can improve our performance and how we can increase the benefits while lowering the costs. Every economic education project or program should include ongoing evaluation and research. Research and evaluation efforts should be widely reported, not only at the end of a project period but from the planning stage onward. One of our greatest needs as economic educators is to keep one another informed of the research and evaluation that is being planned, in progress, or completed.

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A Response to "Research in Economic Education at the Precollege Level"

Dennis J. Weidenaar

This response to Dawson's research review focuses on the implications to be drawn from his findings. The respondent concludes that the same factors which stimulated economic education research in the past—factors such as the 1961 Task Force Report, curriculum projects, growth of the Joint Council, and the emergence of professional economic educators—can also be expected to foster productive research in the future. Weidenaar suggests another type of research, Type IV, also be encouraged. This research would be conducted by "economic education economists" and would be distinguished by its use of tools and approaches unique to economics.

George Dawson's research review is an appropriate starting point for assessing where we have been, where we should have been, and where we should go in precollege economic education. In responding to the review I would like to first deal with Dawson's definition of research as "studies ranging from very informal efforts involving little more than 'nose-counting' to highly structured projects using the most sophisticated techniques of statistical analysis." This is less exact than the dictionary definition of research which is "an investigation or examination aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories of laws."

From Dawson's definition, he proceeds to classify three types of research according to the experimental design and statistical analysis which have been

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used. What Dawson has designated as Type I research, simple fact finding projects with little statistical analysis, actually comprises the first step in a research program. Thus, Type I research is both essential and by itself, incomplete. Type II research, as identified by Dawson, borders on what has come to be known as "casual empiricism," "empiricism" being the practice of relying on observation and experimentation. "Casual" implies that such observation is undertaken by chance rather than as the result of a carefully planned experiment. Type III research, then, includes Type I research, plus the application of appropriate experimental design and analysis.

By forcing Dawson's research review through these three sieves, I suggest, as Dawson does, that we need more Type I and Type III research. However, Type II is less needed since it serves little purpose other than providing practice in initiating questionable research projects.

It is also important in considering research in economic education that we pay our respects to those educators who were concerned about the business of educational research many years before most of us. For example, Geraldine Clifford (1973) in her history of the impact of research on teaching draws a number of conclusions appropriate to economics education research. She suggests that few researchers know the history of education research in general, but she thinks it crucial that every researcher understand the continuity of the education research movement. Although acknowledging that educational research in general does not reflect a unifying learning theory, Clifford maintains that research designed to affect educational priorities is hard to ignore. In view of this, she finds it unfortunate that the "implications" section of research reports is almost always the researcher's weakest section.

SOME IMPLICATIONS OF DAWSON'S REVIEW FINDINGS

Having completed these remarks, I would like to suggest some generalizations that can be drawn from Dawson's findings. Dawson found that at the elementary level virtually no research was undertaken prior to the 1960s and that the bulk of secondary work also occurred after that time. Why? Dawson does not speculate but my hypotheses are that there was no overt attempt to include economics in the curriculum at the elementary level before then, there were no researchers having either training or interest in economics at the time, no motivation for such research existed, no existing organizations were willing to provide support, and no evaluation instruments were available.

Obviously something happened after 1960. Among the events having an impact were the publication of the 1961 Task Force Report on Economic Education and the growth and strengthening of the Joint Council on Economic Education with its encouragement and support for research. The arrival of new social studies emphasizing carefully constructed programs designed by social science disciplinarians also had an impact as did the emergence of a group of educators and economists who saw career possibilities in economic education.

Finally, by providing an outlet for economic education research, the *Journal of Economic Education* added some respectability to research endeavors.

From these and other events of the last two decades, several kinds of factors that stimulated research can be identified. The creation of new curriculum projects which needed researchers and evaluators was important. The development of new evaluation instruments also helped. Increased professional rewards for economic education research and an organizational framework for sharing research findings also provided stimuli. It is reasonable that the same factors which encouraged research in the past can also stimulate research in the future.

RESEARCH BY ECONOMIC EDUCATION ECONOMISTS: TYPE IV

What I have said assumes that where we have been is where we want to go. I am not convinced, however, that more of the same, without some qualitative change, is necessarily better. It appears to me that economic educators have a comparative advantage in research—an advantage that is thus far unexploited.

Most of the research described by George Dawson has been done by economic educationists who are concerned with the effectiveness of communicating knowledge. There has been little research by economic education economists. Such research would reflect the peculiar tools and approaches unique to economics. Thus, in line with Dawson's nomenclature I would label this type of research Type IV. While there are few examples of Type IV research, *An Economic Theory of Learning* by Richard B. McKenzie and Robert Staaf (1974) represents an important thrust in this direction.

Based on Dawson's review and my own biases, I believe research in precollege economics education should move in the following directions:

- More Type I research. Possible questions for exploration include: What are the requirements nationwide for secondary economics teachers and for elementary social studies teachers? What is the nature of the self-contained high school economics course? What is the economic content of secondary problems of democracy and American government courses? and What do we know about college social studies professors?
- More concern with the findings of general educational research.
- Strategies to implement more Type III research.
- Programs to encourage Type IV research.

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A Response to "Research in Economic Education at the Precollege Level"

Robert J. Staaf

After commending Dawson on preparing a useful and readable paper, this respondent directs his comments to the conference as a whole. Staaf first questions the use of the word "need" in most paper titles and asks why the word "demand" was not used instead. He then explores the opportunity cost of economic literacy to the student. Because the optimal level of economic literacy has not been established, Staaf believes it is risky to assume that more economics education is needed, particularly if it means students receive less instruction in other skills and disciplines. The respondent then discusses the opportunity cost of economic literacy to society and questions whether increased literacy among the general population is the public good it is sometimes claimed to be.

Although I have been asked to discuss George Dawson's paper, I should inform the reader that I do not intend to confine my remarks to this paper. Instead I will raise issues which do not seem to have been covered in any of the conference papers. Dr. Dawson has done an extensive survey of the research in the area of precollege economics education. His survey covers 54 research papers from 1914 to 1975. The Type I, II, and III taxonomy developed on research sophistication, dichotomized by elementary and secondary education, is useful, and Dawson presents his conclusions and recommendations in a brief, readable fashion. The paper is in a sense beyond comment in terms of the central task assigned.

In regard to other issues, let me first comment on the title of this conference and some of the titles of papers presented. Most of the conference

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papers have the word "need" or "needed" in the title and a conspicuous absence of the word "demand(s)." Anyone who had read Professors Alchian and Allen's microeconomics textbook would suspect the substance of papers with "needs" in the title (Alchian and Allen 1969). As Alchian and Allen point out, the word "need" is often used by politicians and bureaucrats to disguise the opportunity costs of these "needs." As they rightly state, "the law of demand is a denial of the idea of 'needs' " (Alchian and Allen 1969, p. 75). Because the distinction between "need" and "demand" seems to me to be such a fundamental principle of economics, I am amazed at the use of "need" in this conference, except that the occasion is being funded by a fairly sizeable bureaucracy.

The word "need" implies we are currently below some *optimum* amount of economic literacy. What is the *demand* for economic literacy and what *price* is involved? The current state of the literature, such as represented by the average article in the *Journal of Economic Education* or the papers surveyed by Dawson, suggests there is little "economics" of economic education. Whether or not this state is an optimum is for you to decide. I am going to focus my remarks on the opportunity costs to students and society of economic literacy or economic illiteracy without trying to suggest one state is preferable to the other.

THE OPPORTUNITY COST OF ECONOMIC LITERACY TO THE STUDENT

Recent work on what is commonly called an "economic theory of learning" uses basic consumer theory to argue that increased economic literacy may involve an opportunity cost to the student in terms of sacrificed knowledge in other fields such as literature, math, history, and/or leisure (McKenzie and Staaf 1975; Freiden and Staaf 1973; Staaf 1972). This must be so since all individuals confront a time constraint and a state of technology which does not permit "instant learning." The opportunity cost of economic literacy, of course, depends on the degree of complementarity or substitutability of this type of knowledge with other knowledge. The fact that few of us are proficient in more than one field suggest substitutability or gains from specialization at some level. This issue of substitutability or complementarity is to some extent an empirical one. The papers surveyed by Dawson have generally failed to recognize this potential opportunity cost, and thus it is ignored in specifying models. The opportunity cost notion is not a serious problem when students are given the freedom, within limits to choose curricula. If students are given the right to choose curricula, as most college students are, they alone must evaluate the opportunity cost involved in their choices.

However, elementary and secondary students seldom have the right to choose the subject matter they will learn. The choice process is usually made for the student by some centralized decision-making body involved with curriculum development at the State Board of Education level, and a lack of opportunity cost recognition at this level is evidenced by "needed curriculum reform." But why is economic literacy needed more than other sorts of literacy? Are we willing to pay one unit of math for two units of economics? What is the exchange rate? Who fixes the prices? These are some of the questions not dealt with in the research surveyed by Dawson.

Because of the centralization in our public school system, the issue of opportunity cost is crucial. Some casual evidence on recent performance trends in public education lend support to the argument that the opportunity cost of curricular reform is high. Popular newspaper accounts report that verbal and math Scholastic Aptitude Test scores among high school seniors are declining, remedial reading and writing courses for college freshmen are increasing, and 20 percent of the U.S. adult population is now classified as illiterate; according to a U.S. Office of Education report entitled *Adult Performance Level*, less than one-half the nation's population between ages 18-65 is really proficient in reading, writing, computation, and problem solving skills (Northcutt 1975).

Consider the opportunity cost of economic education to students at the precollege level in terms of their elder counterparts in college. How can one say that precollege children enjoy, need, or *demand* economic education when, for the most part, the principles of economics course at the college level is a required course and therefore not voluntarily chosen? Most economists would, of course, not be in favor of dropping the requirement constraint to find out the revealed demand for economics education. Why is it that a child given the choice to read something from Samuel L. Clemens or from Paul A. Samuelson will choose the former? It is true that with sufficient coercion I can perhaps induce a child to read the latter. But if the child perceives the price of reading Clemens to be lower, will not he/she read more?

Are the basic three Rs in danger of becoming extinct? Without these skills is economics going to be learned? How much of the decline in the three Rs is due to curriculum reform and the introduction of subjects such as economics into the curriculum? Some may argue that I am advocating a "need" for economic *illiteracy*. I do not know what the optimal level of economic literacy or illiteracy is, but I do not think we should start off with the assumption that more economics education is *needed*.

What about the supply side of providing economic literacy? Since Professor Banks has taken the opportunity to polemicize the public school system, I feel I am entitled to a similar polemical right. Banks cites Martin Carnoy as saying:

> *Schools . . . help convince or reinforce children in believing that the system is basically sound and the role they are allocated is the proper one for them to play. Through such "colonization" the society avoids having to redistribute the increases in national*

> *product and reduces the necessity for direct repression of the populace* (Carnoy 1974, p. 13).

Carnoy as well as Samuel Bowles and Herbert Gintis represent what appears to be a growing movement, especially in the field of education. Their principle thesis is that the capitalists control the schools to provide a docile and subservient labor force. Their solution is the elimination of private property and capitalism to be replaced by democratic socialist institutions (Bowles and Gintis 1976). Ironically they blame the public school system, a democratic socialist institution, as being the bedfellow of capitalists. It is also ironic that capitalists should choose a democratic socialist organization to efficiently indoctrinate the masses. Let me raise a counter argument to Professor Banks.

How can teachers, as part of the educational bureaucracy, be expected to instruct children in the efficiency arguments of free trade and competition when their own behavior, as represented by the National Education Association and American Federation of Teachers, follows merchantalist practices, such as teacher certification, lobbying against voucher systems, lobbying against aid to private schools, lobbying for increased state and federal funding, and lobbying for consolidation—all activities which enhance their monopoly position. This behavior of maintaining and extending monopoly rights is, of course, rational whether the organization be a private or public monopolist. But how do teachers instruct children on the marginal productivity theory or the labor-leisure model when their salaries are largely independent of efforts or achievements in the classroom and dependent on how long one lives (call it experience) and how many degrees one accumulates. How can teachers instruct children on the price system when their consumers (students and parents) are denied a market to choose their services. The public school system is not a system of free enterprise!

This is not to say that economics is simply an exposition of the free enterprise system, although the theory of exchange is an integral component. Economic theory has increasingly been applied to areas too numerous to mention. As a student of public choice, I fully appreciate the application of microeconomics to a subject matter usually called political science. Perhaps teachers should become informed in public choice and economics of bureaucracy models rather than the market system, a system from which they are isolated except for their role as consumers.

THE OPPORTUNITY COST OF ECONOMIC LITERACY TO SOCIETY

Professor Hansen's discussion of "citizenship economics" and "personal economics" is interesting. In some sense this distinction is one of public good versus private good. Consider Friedrich A. Hayek's discussion of a particular type of knowledge which is in one sense a private good and in another a public good.

> . . . *but a little reflection will show that there is beyond question*

> *a body of very important but unorganized knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place. It is with respect to this that practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active cooperation . . . . The shipper who earns his living from using otherwise empty or half filled journeys of tramp-steamers, or the estate agent whose whole knowledge is almost exclusively one of temporary opportunities, or the arbitrageur who gains from local differences of commodity prices–are all performing eminently useful functions based on special knowledge of circumstances of the fleeting moment not known to others* (Hayek 1948, p. 80).

Note that this knowledge of time and place is of value because of its uniqueness, not because of its publicness. To the extent such knowledge is implemented through market activities, a public good is generated in the form of pecuniary externalities to consumers. Individuals do not have to be raised on exchange theory, comparative advantage, or national income accounts for this sort of knowledge to generate a public good.

Consider Hansen's illustration of the popular misconception concerning corporate profits rates. Should we invest resources into bringing the popular view of profit rates into line with the actual rate? Would this effect stock market behavior? I think not! Markets work because people behave as they do, not because of their formal economic training to behave economically. In this sense all economic theory is ad hoc. Suppose most students answering a question on demand respond by saying that the quantity demanded increases when price increases. Such responses may be taken to mean that these students are illiterate in economics, but do they behave in an illiterate fashion?

Hayek's example of time and place knowledge illustrates the relationship between acquiring knowledge for private gain and acquiring knowledge to provide a public good. However, economists and economic teachers are ill-equipped to provide this part of knowledge as evidenced by the fact that most economists draw their income from the public trough rather than the market. In a sense it is because the market works as efficiently as it does that the teaching of economics as a private good (personal econmics) is not very effective.*

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*There may be allocative social benefits as discussed by T. W. Schultz, "Higher Education: The Equity-Efficiency Quandry," IDA Economic Papers, Arlington, Virginia, March 1973. However, it would appear that the external benefits are inframarginal and thus not Pareto relevant externalities just as Hayek's time and place knowledge is Pareto irrelevant. With regard to answers on economic tests, we should perhaps be more responsive to revealed preference (behavior) answers than simply the right answer.

The other argument supporting the need for economic literacy is that it promotes good citizenship. Briefly stated, this argument contends that economic literacy generates external benefits by improving governmental policy decisions. As Hansen has stated, economic literacy in this regard can be considered a public good. As with all public good arguments, the problem of free riders leads to a less than optimal provision or an underinvestment of the public good. It is also presumably the rationale for taxing students and taxpayers in the form of course requirements and tax dollars to support economic literacy. But what level of support is optimal? For example, if we raised economic literacy for all eligible voters to the level of Professor Hurwicz's paper, we might consume almost the entire Gross National Product. Moreover, from my viewpoint, we would be worse off even beyond the necessary fall in our standard of living.

Richard McKenzie has explored the good citizenship argument from the perspective of Anthony Down's work on rational ignorance. His findings raise serious questions concerning the validity of the good citizenship argument, and further research along these lines seems warranted (see McKenzie and Staaf 1975, chapter 6; McKenzie 1976; McKenzie 1975).

Suppose one concedes to the assumption that economic literacy is a public good. Does this imply everyone should possess economic knowledge? The citizenship argument presumably rests on voting for certain policy issues. Economic literacy per se is not the public good, rather it is the behavior or services (voting) that is implied by this literacy. Consider by analogy the classic lighthouse example. What is desired is the provision of *one* lighthouse, not a lighthouse for every individual. It is the services of the lighthouse, not the lighthouse itself, which is a public good. From an efficiency viewpoint, it is *not* desirable to have competing lighthouses.

Because economists are fond of assuming beneficent dictators, I shall take the occasion to do so here. Since economic literacy requires resources and since this literacy can be considered a public good, the optimal amount of economic literacy is to have *one* beneficent dictator literate in economics. Some of you may object by pointing out the difficulty of devising an incentive structure which will keep the dictator benevolent in economic matters. I have a fundamentally different objection. Economics as a social science is not scientific as Hayek and Knight have discussed in considerable detail (Hayek 1948; Knight 1956). Hayek seems correct in his assessment that:

> *The economic problem of society is thus not merely a problem of how to allocate "given" resources—if "given" is taken to mean given to a single mind which deliberately solves the problem set by these "data." It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality* (Hayek 1948, pp. 77-78).

I am not willing to turn over to a beneficent dictator literate in economics my right to choose, or the right of others to choose, even if they are illiterate in economics. To quote John Maynard Keynes, ". . . but, soon or late, it is ideas, not vested interests, which are dangerous for good or evil" (Keynes 1935).

One might say I have created a straw man. The point I wish to stress is that the rays (services) eminating from a lighthouse are fundamentally different than the services that are supposed to eminate from a public good called economic literacy. The adage of laying economists end to end and never reaching a conclusion suggests that there is no common economic literacy but rather competing economic literacies. This would seem especially true as one moves from positive economics to the normative economics implied in policy issues. Thus, the pure public good analogy of economic literacy would seem to imply an exactitude or scientificness that simply does not prevail in economics. Anyone who claims otherwise (which I suspect would be mostly economists) should be willing to subject himself/herself to a beneficent dictator, economically literate of course, if the proper incentive scheme can be found.

Perhaps the competition of ideas and the competition of economic literates within the discipline, as well as with other literates in other disciplines, provide a check on our capacity for good or evil. To argue that economic literacy is a public good suggests a *need* for public provision and monopolization of certain economic literates or certain economic ideas. There may well be more than enough competition through private demands for economic literacy (see Stigler 1976 and Brofenbrenner 1976). After all, Adam Smith wrote (and many people read his works) without the aid of public subsidies. Some may even argue that it has been all down hill since 1776.

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Economic Education for Ethnic Minorities

James A. Banks

Focusing on the problems and questions related to the economic education of ethnic minority groups, the author of this paper begins by defining ethnic and ethnic minority groups and highlighting the intergroup and intragroup differences among them. After discussing the major social, economic, and political problems which minority ethnic groups face, Banks details the difficulties involved in trying to design economic education programs which will meet the needs of such a highly diverse population. He then describes the ways in which the school has historically responded to ethnic minorities and ends with a proposal for some reforms which need to take place in economic education specifically and citizenship education generally if our educational system is to help ethnic minority children learn to effectively but humanely participate in needed political and social reforms.

This paper explores some of the problems and questions related to economic education for ethnic minorities. I am particularly concerned about the implications of my discussion for curriculum reform and development. I will define the population which is the subject of this paper and discuss some of the major social, economic, and political problems which minority groups have in American society. The ways in which the school has historically responded to the unique problems of these groups will then be examined. Finally, I will propose some reforms which need to take place for economic education, and citizenship education in general, to more sensitively and accurately reflect the unique problems of minority groups in the United States.

DEFINING ETHNIC AND ETHNIC MINORITY GROUPS

It is important to clearly define the groups that are the major subject of this paper. Since an ethnic minority group is a kind of ethnic group,

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defining "ethnic group" will prove useful. While no single definition of an ethnic group is accepted by all social scientists, the definition formulated by the National Council for the Social Studies Task Force on Ethnic Studies Curriculum Guidelines is helpful and thorough. This Task Force defines an ethnic group as a group which has all of the following characteristics:

> *a)* *Its origins preceded the creation of a nation state or were external to the nation state, e.g., immigrant groups or Native Americans.*
>
> *b)* *It is an involuntary group, although individual identification with the group may be optional.*
>
> *c)* *It has an ancestral tradition and its members share a sense of peoplehood and an interdependence of fate.*
>
> *d)* *It has some distinguishing value orientations, behavioral patterns, and interests (often political and economic).*
>
> *e)* *The group's existence has an influence, in many cases substantial, on the lives of its members.*
>
> *f)* *Membership in the group is influenced both by how members define themselves and by how they are defined by others* National Council for the Social Studies Task Force on Ethnic Studies Curriculum Guidelines 1976, pp. 9-10).

Using this definition, Irish Americans, Italian Americans, and Polish Americans, as well as Anglo-Saxon Protestants, are classified as ethnic groups.

An ethnic minority group is a specific type of ethnic group. While it has all the characteristics of an ethnic group delineated above, it can be distinguished from an ethnic group because it is characterized by several unique attributes. It has unique physical and/or cultural characteristics which enable individuals belonging to dominant ethnic groups to easily identify its members and thus treat them in a discriminatory way (Banks 1975b). Because they are frequently victims of discrimination and institutionalized racism, ethnic minorities tend to be highly concentrated in the lower socioeconomic strata of society and are usually able to exercise little political and economic power. Ethnic minorities also tend to be numerical minorities within a society and to make up only a small proportion of the population. In 1970, the non-White ethnic minorities in the United States made up about 15 percent of the national population.

The major ethnic minority groups within the United States are Afro-Americans, Mexican Americans, Jewish Americans, Puerto Rican Americans, Asian Americans (including Japanese Americans, Chinese Americans, and Filipino Americans), Native Americans, Cuban Americans, and Native Hawaiians. There are also significant numbers of other ethnic minority groups within the United States, such as Korean Americans, Samoan

Americans, and the most recent immigrant group, Vietnamese Americans. Selected demographic characteristics of these groups are found in Table 1.

TABLE 1***

Selected Demographic, Income, and Employment Characteristics of Ethnic Minority Groups in the United States*

	Afro-Americans	American Indians	Japanese Americans	Chinese Americans	Filipino Americans	Mexican Americans	Cuban Americans	Puerto Rican Americans	Native Hawaiians
Total Number	22,549,815	763,594	588,324	431,583	336,731	4,532,435	544,600	1,429,396	99,958
Percent of Total Population (203,211,926)	11%	.4%	.3%	.2%	.2%	2%	.3%	.7%	.05%
Mean income of those 25 and over	$3,766	$3,636	$6,277	$5,597	$4,984	$3,968	$4,495	$4,132	$6,682
Median school years completed for those 25 years and over	9.8	9.8	12.5	12.4	12.2	8.1	10.3	8.7	12.1
Percent of those employed, 16 and over, who are professional, technical, and kindred workers	8%	10%	19%	25%	24%	6%	11%	6%	(NA)**
Percent of those employed, 16 and over, who are laborers, except farm	9%	9%	6%	2%	5%	10%	4%	6%	(NA)**

* This table is based on data reported in Bureau of the Census, *Subject Reports: Ethnic Groups*, 7 vols. (Washington, D.C.: U.S. Government Printing Office, 1973).

** Data not available.

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PROBLEMS AND CHARACTERISTICS OF AMERICAN ETHNIC MINORITY GROUPS

The above list of major ethnic minority groups within the United States suggests an enormous range of cultural, physical, social, and economic characteristics both within and among these groups. They have widely varying racial and physical characteristics. Jewish Americans are Caucasians and are usually considered Caucasians by outside ethnic groups. The United States Census classifies Cuban Americans and Mexican Americans as White. Sociologically, however, I believe these two group share many characteristics with groups such as Filipino Americans and other non-White ethnic minorities, and can be considered "non-White" groups from a sociological perspective. Cuban Americans, as well as Puerto Rican Americans, are actually multiracial groups because these groups have members who are considered "Black" and "White" by most Americans. These groups also consist of many members who are hues between these two extremes. Most native born United States citizens whose first language is English and who have any known Black African ancestry are considered "Black" or "Afro-American," regardless of their skin color or physical characteristics.

The different racial characteristics which exist within and between various minority groups have affected and continue to affect the life chances and experiences of ethnic groups as well as the life chances and experiences of individuals within these groups. In general, the more an ethnic group's racial characteristics approach those of the Anglo-Saxon idealized Nordic norm, the greater are its chances to gain access to American social, economic, and political institutions. This is as true for individual members of ethnic groups as it is for ethnic groups as wholes.

Especially prior to the Black Revolt of the 1960s and particularly in the South, those Blacks with Caucasian physical characteristics were permitted much more social and economic mobility than those who looked "African." In most states in the Deep South during the 1940s and 1950s, ethnic groups were conveniently classified for school purposes into two major "racial" groups, "Black" and "White." These states did not choose to run more than two school systems. I think it is significant that all ethnic groups in these communities were considered "White" for school purposes except Blacks. This practice made a tremendous statement to Blacks and to all other ethnic groups. It also reinforced the Southern caste system that is so ably described by John Dollard (1937).

My analysis of the role of race and racial characteristics in shaping the experiences of ethnic groups is not meant to suggest that non-Black ethnic groups have not been victimized by discrimination and institutionalized racism in the United States. No student of ethnicity in America would make such a claim. However, because of the nature of institutionalized racism in America, the perceived different "racial" characteristics of different ethnic groups have caused their experiences within American society, as well as their self-perceptions and identities, to vary. For example, the racism which Japanese Americans experience in contemporary American society tends to be more subtle than that experienced by most Blacks. This is caused, in part, by the different socioeconomic and cultural characteristics of members of the two groups, but the difference in racial characteristics is also an important variable. The different racial characteristics found both within and between ethnic minority groups is one of the major variables which makes each of their experiences unique.

Socioeconomic Characteristics of Minority Groups

There are many other differences within and among the various ethnic minority groups within the United States. Many of these relate to their cultures, values, histories, self-perceptions, and current experiences. However, most pertinent to this discussion is the varying socioeconomic status of groups. These exist within different ethnic groups as well as among them. Jewish Americans and Japanese Americans have extremely high median educational levels. Their median income status also compares favorably with members of the dominant ethnic groups within American Society. However, there are extremely poor Jewish Americans and Japanese Americans who are confined largely to ethnic enclaves. Lower class members of these groups tend to be invisible Americans.

The median educational and economic levels of minority groups, such as Blacks, Native Americans, and Puerto Rican Americans, are considerably below the medians for Whites. A recent report published by the National Urban League indicates that the economic status of Blacks is bleak and is worsening. According to the report:

> *The proportion of middle income Blacks is dropping and . . . 21 percent of all black families can now be classified as middle income compared with 25 percent in 1973. . . . The gap between black family income and white family income remains wide. The Urban League places black income at 56 percent of white and the U.S. Census [places it] at 58 percent* (Welsing 1975, p. 268).

These kinds of data indicate that improvements in the social, economic, and political status of low-income minority groups which began during the civil rights movement of the 1960s have abruptly ended and that their general social and economic conditions are steadily worsening.

CURRICULAR IMPLICATIONS OF INTERGROUP AND INTRAGROUP DIFFERENCES

I have discussed some of the major differences within and between ethnic minority groups at considerable length because I think it is extremely important for curriculum developers to keep these kinds of differences in mind when trying to design curriculum materials consistent with the unique needs of these groups. The enormous differences within and among these diverse groups suggest how exceedingly difficult it is to design curriculum materials and programs to meet their unique needs. The kind of economic education experiences needed by Jewish American students in New York City might differ in some important ways from the kinds of economic education programs needed by Filipino American students in Seattle. Economic education experiences which are very beneficial for low-income Jewish American students might be inappropriate for high-income Jewish American students. The kinds of economic education experiences needed by specific groups of ethnic minorities might be influenced by their socioeconomic status, region, level of assimilation, current experiences, and history.

All students, including all groups of ethnic minority students, have some generalized intellectual and affective needs that can be satisfied by a sound comprehensive program in economic education. However, some minority students, because of their unique experiences in this society, have some special needs that are not met by universalistic approaches. Their differences often imply the selection of unique concepts, teaching strategies, materials, and examples. Recent and emerging research suggests that some minority youths may need to experience somewhat different teaching styles in order to reach maximum achievement levels (Ramirez and Castañeda 1974). These rather unique teaching styles are not usually favored by the schools. The special needs of ethnic minority groups are complex, diverse, and difficult to specify.

When educational programs are designed for ethnic minorities, curriculum developers frequently conceptualize them as a homogeneous group with a set of stereotypic needs. Often these needs are a figment of the developer's imagination and reflect his/her sterotypic conceptions of ethnic minorities. Some writers, for example, have suggested that all Black children should be taught to read with Black English readers and that all Mexican American students should be taught in Spanish when they enter school. Despite the benign intent of these kinds of curricular proposals, they may be as detrimental to many highly assimilated Blacks and Mexican children as are the damaging practices they are designed to replace.

Despite the above caveats, and I hope the reader will keep them foremost in mind, I am going to identify some specific needs of one large culturally diverse group of ethnic minorities which share some salient characteristics. I will focus on low-income members of ethnic minority groups who are highly visible and who are easy victims of discrimination because of their distinct racial, ethnic, and socioeconomic characteristics. This group includes large numbers (but by no means all members) of Afro-Americans, Native Americans, Puerto Rican Americans, Mexican Americans, Chinese Americans, and Filipino Americans. I am focusing on the unique needs of this group because of the seriousness of their plight in American society. The members of this group share these characteristics: they are near the bottom of the socioeconomic ladder, are politically and psychologically alienated, are victims of our political and economic system, and are characterized by low levels of structural and cultural assimilation (Gordon 1964).

THE SCHOOL AND ETHNIC MINORITIES

Before discussing the ways in which the curriculum should be changed to more adequately reflect the economic, social, and political experiences of oppressed ethnic minority groups, we need to examine the kind of economic education which minority students are currently experiencing in the schools. However, it is necessary to discuss how the school relates in general to ethnic minorities and to describe economic education practices within that broader context. Economic education is a part of the total school curriculum and cannot be adequately analyzed or understood as a separate and distinct part of the school. We can understand the nature of economic education only by examining the major role of the school in American society.

Historically, the school curriculum has been designed primarily to reinforce the status quo, to legitimize the positions of those in power, to perpetuate and reinforce social class stratification, to make students politically passive, and to perpetuate myths about lower class and minority groups in order to make them content with their immoral social conditions. Writes Carnoy, "Schools . . . help convince or reinforce children in believing that the system is basically sound and the role they are allocated is the *proper* one for them to play. Through such 'colonization,' the society avoids having to redistribute the increases in national product and reduces the necessity for direct repression of the populace" (Carnoy 1974, p. 13).

In the United States, as in most other nations, only a few individuals are able to experience substantial social class and economic mobility. To a great extent, individuals are provided opportunities to experience social class and economic mobility on the basis of how similar they are, culturally and racially, to those groups and individuals who exercise substantial power within society. White Anglo-Saxon male Protestants with money are probably the most valued persons in the United States. They are the "ideal" group. Other groups and individuals are often judged on the basis of their similarity to them (Sizemore 1972, pp. 141-68).

An important goal of the common school is to train lower class minority youths so that they will inculcate the dominant values, beliefs, myths, and ideologies of the social and economic systems and accept their economic and social fates as deserved. Another major goal of the school is to make these youths into a "lower, laboring class which [is] docile and controllable, and which adhere[s] sufficiently to the values and myths of the [dominant society] that it [is] not likely to question its place in society" (Dickeman 1973, p. 6). Carnoy* writes insightfully about the role of the American school:

> *Rather than building independence and self-reliance among the poor in America, schools are used to ensure, as much as possible and apparently with some success, that those in the worst economic positions do not rebel against the system which represses them and identifies with leaders who would work within the framework of action set by the dominant* [*group*]. *Schooling as a colonial institution attempts to make children fit certain molds, to shape them to perform predetermined roles and tasks based on their social class (*Carnoy 1974, pp. 18-19).

Powerful groups determine the formulation and dissemination of knowledge just as they determine economic and political policy. Most of the knowledge which becomes institutionalized within society, and consequently within the curriculum, is designed to support the status quo, to legitimize the positions of those in power, and to make citizens passive producers and consumers who are content with their social conditions. Thus, that knowledge which is perpetuated in the common schools frequently reflects the norms, values, and

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*For further support of Carnoy's position see Michael B. Katz, *Class, Bureaucracy and Schools: The Illusion of Educational Change in America*, expanded edition, New York: Praeger, 1975.

goals of the powerful groups in society; it often validates and legitimizes the beliefs, ideologies, and myths, such as racism, which are useful for powerful groups and detrimental to powerless minorities.

Economic Education: Current Practices

The economic knowledge which is perpetuated in the common schools, like other forms of disciplinary knowledge, tends to reinforce the basic beliefs about our economic system and is primarily designed to make students complacent citizens and docile producers and consumers. Students are rarely encouraged to question some of the basic assumptions and practices of our economic system or to seriously examine how it systematically discriminates against powerless minority groups and perpetuates economic inequality. Rarely, for example, do economic education materials encourage students to examine the relationship between economics and political power in this nation. Political policy in America, as the recent political scandals have made clear, is heavily influenced by the major corporations which dominate American economic life (Mills 1956).

The school curriculum also tends to be Anglo-American centric and monoethnic, and to present most events, situations, and concepts primarily from Anglo-American perspectives. In a popular elementary social studies program which has a strong economic education component, one primary grade lesson is designed to inculcate positive attitudes toward volunteerism and volunteer work. The students initially read a text selection and hear their teacher read a story which glorifies the virtues of volunteer work. To reinforce the values of the series' authors, the students are then given a worksheet which pictures numerous kinds of volunteer jobs. The student is *required* to check which of the volunteer jobs he/she would like to have.

This lesson is very Anglo-centric and middle class biased. Many minorities are socialized within communities where the concept of volunteer work is foreign. Their environment is characterized by a daily struggle for survival; the concept of volunteer work is alien to this environment. Poor people usually work for basic needs, such as food, clothing, and shelter.

This type of lesson may force the lower class ethnic minority child to feel alienated in school and ashamed of his/her ethnic culture and family background. While the concept of volunteerism is foreign to many lower class minorities, the concepts of mutual help and cooperation are not since mutual help in many ethnic communities is necessary for survival. To be more ethnically sensitive, this lesson should allow and encourage the students to explore *alternative* attitudes and perceptions of volunteerism and to explore how and why this concept differs among ethnic cultures.

The monoethnic, idealistic, and mythical nature of much economic education is frequently manifested in consumer education lessons and exercises. Students are taught to increase the goods and services which they can buy with their limited income through practices such as buying meat by the serving rather than by the pound and by "shopping hard." However, in the ethnic enclaves where the meat is often spoiled or twice the price of meat in other areas of the city, it may be irrelevant whether it is bought by the serving or by the pound or whether the individual "shops hard." The most important question is how the consumers can obtain the political power needed to get jobs for which they qualify and consumer rights which other citizens often enjoy.

Students frequently learn that "price is a measure of the relative scarcity and need for goods, services, or resources." While this statement has a degree of validity, it is often an incomplete explanation of prices in ethnic neighborhoods or within lower class communities. Frequently in these communities consumer goods are sold at very high prices because the consumers are unable to exercise consumer rights which can be exercised by citizens in more affluent communities. Because of price fixing in the community, the consumer might not be able to "shop hard." More importantly, because of established norms and practices among businesspersons in many ethnic communities, the consumers are often regarded and treated with contempt and hostility.

Implications for Reform in Economic Education

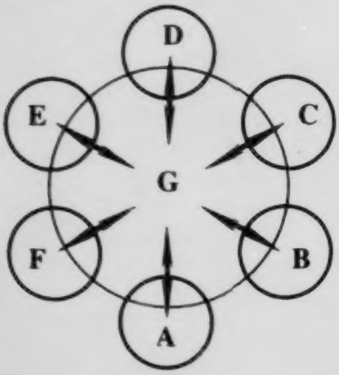
Educational institutions need to clarify their philosophical positions regarding the education of ethnic minorities, especially those who have distinctive ethnic characteristics. Historically, the school has forcibly assimilated immigrants and minorities into the Anglo-American culture and reinforced and perpetuated dominant ideologies in American society.

Forced assimilation has historically been the goal of public education in the United States for both European immigrants and non-White ethnic groups. The history of Indian education makes this dramatically clear (Fuchs and Havighurst 1973). It is imperative that the school reexamine its assimilationist philosophy in light of contemporary needs and social forces. Many ethnic groups are seriously questioning whether total assimilation is the best goal for their youths, and feel strongly that ethnic youths need to develop a sense of ethnic pride and retain important aspects of their cultures. This problem is compounded by the fact that because most individuals and groups who shape major public policy in industry and government do not embrace an ethnically or racially pluralistic philosophy, they exclude from full societal participation people who are culturally and racially unlike themselves. Thus, if minority students do not attain the knowledge, skills, and abilities that are part of our universalistic Anglo-American culture, their opportunities for social and economic mobility will be severely limited.

How can the school resolve this dilemma? We can conceptualize the sociocultural environment of minority youths as biethnic, consisting of both their ethnic community and the Anglo-American ethnic society (see Figure 1).

Figure 1

The Sociocultural Environment of Ethnic Minority Youths



The ethnic minority youth functions within two socioethnic environments, that of his or her ethnic subsociety and that of the dominant ethnic group, Anglo-Americans. The circles labeled A through F represent ethnic minority subsocieties. The circle labeled G represents the dominant ethnic society. The school should help ethnic minority children learn to function successfully within their own ethnic society. It should help Anglo-Americans to learn to function in all of these ethnic subsocieties and present them with cultural and ethnic alternatives.

While these two societies have many commonalities, each constitutes a unique whole, and has systems of distinctive values, norms, languages, and institutions. Each also requires a distinctive set of skills to function within it successfully. An individual might be able to function effectively within his or her ethnic community and poorly within the universalistic culture. The converse might also be true.

Conceptualizing the sociocultural environment of minority youths as biethnic is an ideal-type notion. In reality, these societal milieux share many characteristics and are not as distinct as is often asserted by cultural pluralists (Banks 1976). Also, many minority youths, especially upwardly mobile ones, have few or no ethnic cultural traits and are socialized and function primarily within Anglo-American communities. An Afro-American or a Mexican American can be as Anglo-Saxon as an English-American. However, ideal-type constructs can help us to conceptualize a problem, even though they vary somewhat with reality. By viewing the sociocultural environment of minority youths as biethnic, we can formulate a philosophically sound position regarding their economic and general education. However, in doing so, we should always keep the limitations of our conceptual framework in mind.

GOALS OF ECONOMIC EDUCATION FOR MINORITIES

The major goal of economic education for ethnic minority youths should be to help them to attain the knowledge, attitudes, and skills needed to maximize their economic, social, and political options. It should present them economic and social alternatives and help them acquire the understandings and skills they need to function effectively within their own ethnic cultures and within the universalistic culture. To function adequately within their ethnic community and to maximize their chances for economic and social mobility, Black inner-city children need to know how economics and politics are related in the inner-city as well as how they are related on Wall Street.

However, in the process of helping minority youths learn how to successfully function within the dominant society, we should not violate their ethnic cultures in the process nor force them to undergo a process of self-alienation. We should not force ethnic youths to reject their identities and experiences, as we so frequently do, in order to learn to function within a culture which is, in many ways, alien to them. Self-denial and self-rejection are too big a price to pay for economic and social mobility.

The experiences and cultures of ethnic minority youths should be accepted as valid and made a legitimate part of the curriculum. Components of the universalistic culture should be presented as alternatives and as other ways of being, acting, and feeling which minority youths will need to master to function effectively beyond their ethnic communities.

In a perceptive and seminal paper, David Apter suggests that individuals within highly modernized societies, despite assimilationist beliefs to the contrary,* psychologically need strong ethnic or primordial attachments and will insist on holding on to them (Apter 1975). The assimilationist insists that primordial attachments are fleeting and disappear within a modernized democratic state (Banks 1975a). Apter argues that this is not and cannot be the case. As he points out, individuals are quite capable of multiple identities and of functioning effectively within their own ethnic communities as well as within the universalistic culture. They can have ethnic allegiances as well as allegiance to the national democratic ethos. Nathan Glazer, extending Apter's argument, suggests that we should educate students so that they will become "universalized primordialists," individuals who are able to function effectively within their primordial (or particularistic) culture as well as within the universalistic culture (Glazer 1975).

It is necessary but not sufficient for the school to help minority children acquire the skills which they need to attain economic and social mobility and function successfully within the universalistic culture. It should also help

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*Apter calls these beliefs the "assimilationist fallacy." For an opposing view on this question see Orlando Patterson, "Ethnicity and the Pluralist Fallacy," *Change*, March, 1975, pp. 10-11. Reactions to Patterson's essay by a number of social scientists are found in "On Ethnicity and Cultural Pluralism," *Change*, Summer, 1975, pp. 4-7, ff 70-72. These reactions essentially support Apter's argument.

equip them with the skills, attitudes, and abilities needed to attain power so that they can effectively participate in reforming social, economic, and political systems. We will perpetuate the status quo if we merely acculturate students to fit into the Anglo-Saxon mold. They must acquire both the skills and the commitment needed to engage in radical social change if we are ever going to create a society in which individuals and groups can freely participate without regard to their ethnicity, sex, or social class.

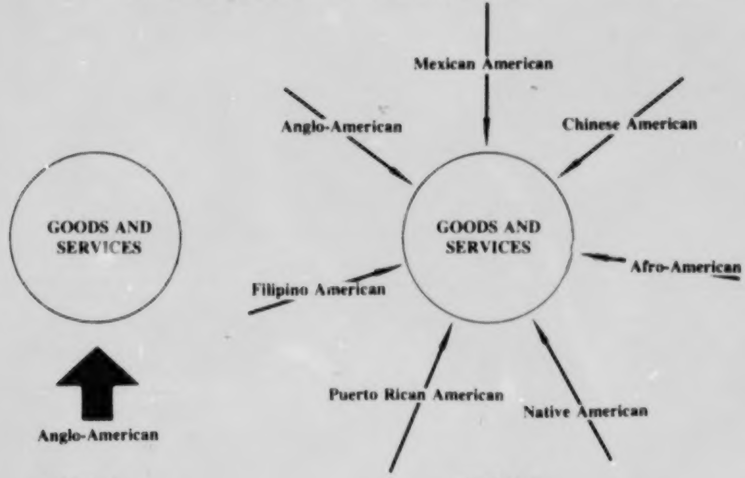
Multiethnic Interdisciplinary Approaches to Economic Education

The school curriculum, and the economic components within it, should be based on a multiethnic model (see Figure 2) in which students view and study events and concepts, such as scarcity, production, and consumption, from the perspectives of many different ethnic and social class groups. When a concept such as work is studied, the students can explore various perspectives of work within different ethnic communities. The students could research these kinds of questions:

> How is work regarded in Black inner-city communities? Why?
>
> How are the perceptions of work within Black inner-city communities similar and different from perceptions of work among Chicano field workers in the Southwest? Why?

Figure 2

Studying Economics from Multiethnic Perspectives



MODEL A
ANGLO-AMERICAN CENTRIC MODEL

MODEL B
MULTIETHNIC MODEL

Economic events, concepts, and principles are most often viewed in the schools primarily from Anglo-American perspectives (MODEL A). Students should view economic events, concepts and principles from the perspectives of diverse racial and ethnic groups (MODEL B). This figure is adapted from James A. Banks, "Ethnic Studies as a Process of Curriculum Reform," *Social Education*, **February, 1976.**

What factors determine a people's attitudes toward work?

How does work and the perceptions toward it differ in Black lower class and Black middle class communities? Why do these differences exist?

When studying economic concepts, such as work, scarcity, production, and consumption, from the perspectives of different ethnic groups, students should keep in mind the variants of ethnicity discussed earlier in this paper. Among them are social class, educational level, level of identification with ethnic group, region, and history. The students should understand that ethnic groups are not monolith groups and higher status members of an ethnic group tend to have attitudes and perceptions which are quite different from their lower class counterparts. This results largely from their high levels of cultural assimilation.

However, within ethnic communities which are characterized by low levels of assimilation and low socioeconomic status, students are likely to find strong ethnic cultural characteristics and will be able to make valid generalizations about the attitudes and perceptions of these segments of ethnic groups. Ethnic literature, songs, language, and dances can be used to effectively teach about ethnic attitudes towards many economic concepts, such as work and poverty. The students might also find that ethnic cultural characteristics strongly influence not only attitudes and perceptions of work but the ways in which different ethnic groups consume goods and services.

Effective economic education experiences for ethnic minority students should also help them view economic problems from various disciplinary perspectives as well as from multiethnic perspectives. The economic problems which ethnic minorities experience cannot be adequately understood and acted upon by merely looking at them from an economic perspective. Problems, such as poverty, consumer exploitation, and job alienation, have moral, legal, geographical, sociological, historical, and political ramifications (see Figure 3).

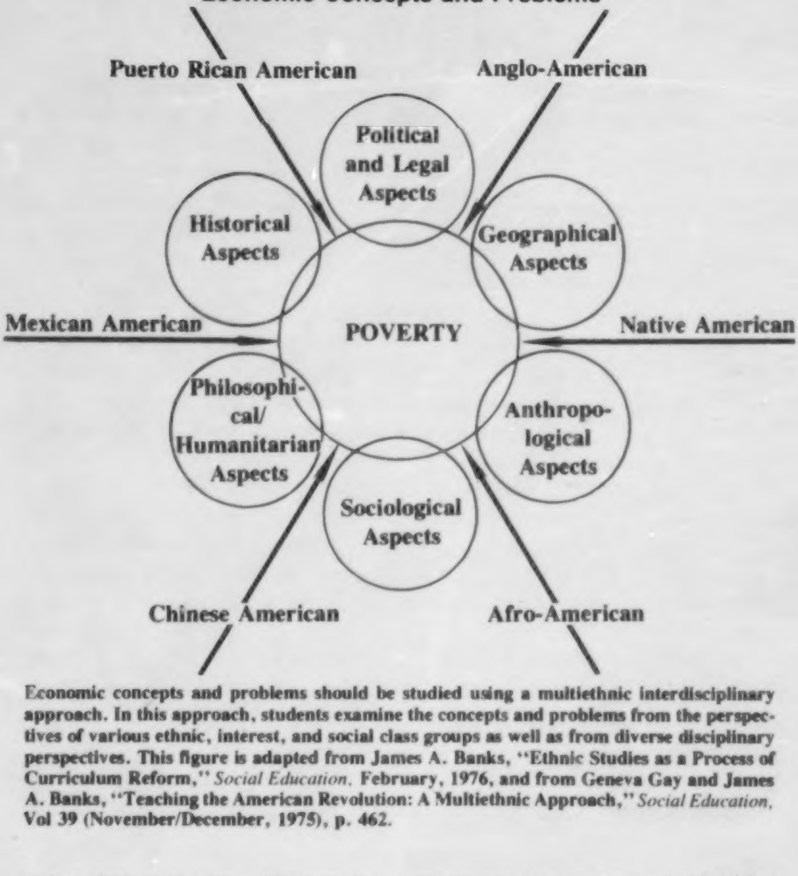
Economic Education and Citizenship Education

Effective economic education must be intricately related to political and citizenship education. A major goal of an effective curriculum for ethnic minorities is to help them to develop a sense of political efficacy and the skills needed to influence the political system. Such skills are absolutely necessary for them to obtain their consumer rights and to become productive citizens of the nation state. The economic component of the common school curriculum, like all other disciplines, should contribute to the political and citizenship education of students.

Minority students, as well as other students, can studiously learn about the nature of a complex economic system, the way it should work, and what their rights are within it. However, unless they can exercise the political power needed to create the conditions necessary for them to obtain their consumer

Figure 3

A Multiethnic Interdisciplinary Model for Teaching Economic Concepts and Problems



Economic concepts and problems should be studied using a multiethnic interdisciplinary approach. In this approach, students examine the concepts and problems from the perspectives of various ethnic, interest, and social class groups as well as from diverse disciplinary perspectives. This figure is adapted from James A. Banks, "Ethnic Studies as a Process of Curriculum Reform," *Social Education*, **February, 1976, and from Geneva Gay and James A. Banks, "Teaching the American Revolution: A Multiethnic Approach,"** *Social Education*, **Vol 39 (November/December, 1975), p. 462.**

rights, their sophisticated knowledge about economic concepts and principles might lead to a dead end. In the final analysis, those of us in precollege education are concerned primarily about educating reflective and humane citizens who have political efficacy and the knowledge and skills needed to influence public policy. Knowledge which does not help students develop a greater sense of personal and political efficacy has a questionable role in the curriculum of the nation's common schools. Economic concepts and principles which are a part of the precollege curriculum should help individuals become more effective citizens of the nation state.

Value Inquiry and Citizenship Education

While multiethnic interdisciplinary knowledge is necessary to enable students to become reflective political activists, it is not sufficient. To exercise power in ways which are consistent with human dignity and other American Creed values, the social actor must be able to identify, clarify, and justify his/her moral decisions. Value education should be an integral part of a curriculum designed to help students to develop decision-making and social action skills. Economic issues, such as world hunger and poverty, poverty within our own nation, and consumer exploitation, raise complicated moral and ethical issues which students should be helped to deal with rationally and reflectively.

Teachers should help students explore the moral and ethical dimensions of economic problems and issues by helping them develop a method (or process) for deriving, clarifying, and justifying their moral decisions. A number of valuing techniques and strategies are available to help curriculum developers and teachers design value components of economic education programs. The major approaches, which have been conceptualized and summarized by Superka, Johnson, and Ahrens, are presented in Figure 4. I have developed a value inquiry model, which can be classified as a clarification model, that is described in detail elsewhere (Banks with Clegg 1973; Banks 1975b).

Historically, the major goal of the school has been (and is) to perpetuate and reinforce the status quo and to make students passive consumers and docile workers. The economic education components, like other aspects of the school curriculum, have reinforced and, to a large extent, continue to reinforce the dominant beliefs, myths, and ideologies about our economic system. Current economic components of social studies programs may be characterized as monoethnic, idealistic, mythical, and Anglo-American centric.

Alternative goals for the economic education of ethnic minorities should be set. They include:

- Helping ethnic minority youths to learn how to function effectively within their ethnic cultures and within the universalistic culture, to become in Nathan Glazer's words, "universalized primordialists."
- Helping minority youths to learn to view economic problems and issues from multiethnic interdisciplinary perspectives.
- Helping ethnic minority youths to acquire the skills, understanding, and commitment needed to attain power so that they can, through effective and humane political action, help to reform our political and economic systems and, consequently, make them more responsive to the human condition.

Overview of Typology of Values Education Approaches*

Approaches	Purposes	Methods	Examples of Materials Title	Developers
Inculcation	To instill or internalize certain values in students To change the values of students so they more nearly reflect certain desired values	modeling; positive and negative reinforcement; mocking; nagging; manipulating alternatives; providing incomplete or biased data; games and simulations; role playing; discovery learning	*Human Values Series* *Coronado Plan: Teacher's Guides*	Blanchette *et al.* (1970) Bensley (1974)
Moral Development	To help students develop more complex moral reasoning patterns based on a higher set of values To urge students to discuss the reasons for their value choices and positions, not merely to share with others, but to foster change in the stages of reasoning of students.	moral dilemma episodes with small-group discussion relatively structured and argumentative	*First Things: Values* "Teaching Strategies for Moral Dilemmas"	Kohlberg and Selman (1970) Galbraith and Jones (1975)
Analysis	To help students use logical thinking and scientific investigation to decide values issues and questions To help students use rational, analytical processes in interrelating and conceptualizing their values	structured rational discussion that demands application of reasons as well as evidence, testing principles, analyzing analogous cases; debate, research	*Public Issues Series* *Analysis of Public Issues Program* *Values Education*	Oliver and Newmann (1967-72) Shaver and Larkins (1973) Metcalf (1971)
Clarification	To help students become aware of and identify their own values and those of others To help students communicate openly and honestly with others about their values To help students use both rational thinking and emotional awareness to examine their personal feelings, values, and behavior patterns	role-playing games, simulations; contrived or real value-laden situations; in-depth self-analysis exercises, sensitivity activities; out-of-class activities; small group discussion	*Decisions and Outcomes* *Values and Teaching* *Values Clarification* *Values in Action* Scholastic *Contact* Series *A Probe into Values*	Gelatt *et al.* (1973) Raths *et al.* (1966) Simon *et al.* (1972) Shaftel and Shaftel Goodykoontz (1968) Church (1973)
Action Learning	Those purposes listed for analysis and clarification To provide students with opportunities for personal and social action based on their values To encourage students to view themselves as personal-social interactive beings, not fully autonomous, but members of a community or social system	the methods listed for analysis and clarification as well as action projects within the school and community and skill practice in group organizing and interpersonal relations	*Finding Community* *Social Action*	Jones (1971) Newmann (1972)

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*Reprinted with permission from *Values Education Sourcebook: Conceptual Approaches, Materials Analyses, and an Annotated Bibliography*, by Douglas Superka et al., Boulder, Colorado: Social Science Education Consortium, Inc., 1976, pp. 4-5.

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A Response to "Economic Education for Ethnic Minorities"

Frank W. Gery

In response to Banks' paper, this writer suggests that attention also be given to gifted students. To attract gifted secondary students to the study of economics, the respondent describes a teaching model—the Empirical Hypothesis Testing (EHT) model—which was developed and has been tested at summer institutes for gifted students. Using the model, students learn macroeconomic theory and microeconomic applications through self-designed experiments involving social data, computers, and the multiple linear regression technique. The author discusses student, teacher, and equipment problems in implementing the EHT model in the regular high school setting and suggests ways of overcoming such difficulties.

The conference organizers suggested that in my response to Professor Banks' paper I might reflect on the problems of teaching economics to the gifted student. I am happy to follow this suggestion for two reasons. First, I am not well qualified by training or experience to critically evaluate the Banks' model for teaching economics to ethnic minorities. Second, for the gifted student I would propose a teaching design which is in sharp contrast to the one proposed by Banks. By establishing this counterpoint, we may launch a discussion about the appropriateness of the teaching design to the existential situation of the particular student.

At the outset I would suggest that both the Banks' model and the one I propose are consistent with the current vogue of teaching social studies by the inquiry method. Banks makes a plea for a "value inquiry" model in which "teachers help students explore the moral and ethical dimensions of economic problems." He argues that teachers must teach economics from a multiethnic interdisciplinary perspective, recognizing the "two cultures" in which ethnic minorities live, move, and have their being.

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With regard to the gifted student, my own plea is for a teaching mode which confronts his or her own existential situation. Gifted students may be defined as young persons who demonstrate both an intellectual capacity—be it verbal, mathematical, or artistic—well beyond their peers and a maturity in pragmatic expression of this ability. Unfortunately, there are often idiosyncratic behavioral manifestations in other aspects of such students' personalities that are misunderstood by teachers and derided by peers. Among these are the desire for solitude and the need for room to "experiment" independently. To this student, social studies education, indeed any classroom-oriented educational program, is often boring or trivial.

In my judgment, the most important need of such a student is to be given the opportunity to pursue task-oriented projects largely determined by the student but with teacher-established guidelines and limits. In this way the creative urge and individual capacity of the student can be developed within a framework mutually established by the student and the presumably more experienced and knowledgeable teacher. Other students, although bright and alert, may thrive better in a climate which is more structured and involves more interaction with other students.

The model I shall propose is called the "Empirical Hypothesis Testing" (EHT) model, and is intended to attract the gifted student with high verbal and math capabilities to the *science* of economics. I do not believe that the "Empirical Hypothesis Testing" model necessarily competes with the Banks' multiethnic value inquiry model. Indeed, I would suggest that they are complementary and that it is not a question of "either/or" but rather "both/and."

THE EMPIRICAL HYPOTHESIS TESTING (EHT) MODEL

Background Project

Thirteen years ago, when I first considered submitting a prosposal to NSF for a summer institute in economics for gifted high school students, I pondered the question, What is there about the natural and physical sciences that seems to attract gifted young people? The answer seemed to be: self-designed experiments using the raw materials and the laboratory apparatus of the sciences. Presuming the accuracy of the answer, there came a second question, Are there elements in economics analogous to the appartus, materials, and experiments of the sciences? The answer here seemed to be that such materials consist of social data and the laboratory apparatus of calculators and computers. The controlled experimental method seemed to be most closely represented by the multiple linear regression technique.

Thus, in our first proposal to NSF, as well as in later ones, we included major units in EHT. From the early years until now we have utilized other teaching models such as panel discussions, debates, expert witness, "presidential commissions," economic gaming. But in spite of all the dirty work, frustrations, and time consumption (or maybe because of these things), the one unit which repeatedly scores highest on student evaluations is EHT. Further, it seems to be the most rewarding, enriching, and intellectually challenging.

The EHT teaching mode is based on two premises: (1) the same things which attract gifted students to the sciences can be expected to attract them to economics, and (2) gifted students do not need a teacher in the conventional sense. The main problem is for the teacher to "get out of their way," or better, "help them make their own way."

Current EHT Teaching Model*

We use EHT in two steps: (1) as a teaching tool in the regular macroeconomic theory unit, and (2) as a custom-made, individualized hypothesis testing project.

Stage 1: Teaching Macroeconomic Theory

In outline form, here are the steps we follow:

1. Organize the class into teams of two or three members each. We find this advisable so that a weak member can be reinforced by the more perceptive students.
2. Collect data and estimate a simple consumption and simple investment function. Although data banks have been set up for later work, there is some advantage for students to collect and input their own data.
3. Hand in an interpretive report of findings. Comparative results of appropriate parameters are put on the blackboard and become the basis for discussion of marginal propensity to consume, multiplier, interest elasticity, induced investment, and the like.
4. Reestimate equations adding one or more plausible independent variables. (optional)

The first stage enables the class as a whole to complete a project involving both the statistical and economic implications of working through a hypothesis about consumption and investment functions, and it gives them a comfortable feeling, i.e., economic analysis with data has some merit and is something a novice can do.

Parenthetically, we also utilize this first stage as a teaching model for our beginning courses in economics for freshmen and sophomores at St. Olaf College. Logically, a similar strategy could be used to teach demand functions in microeconomics, if the teacher is willing to deal with the identification problem. We have found that computer gaming, where competitive and oligopoly markets are simulated, works better for both gifted high school and beginning college students.

Stage 2: Individualized EHT

We start individualized EHT projects by grouping students according to similar topical interests; then we gradually get them to hone a simple hypothesis statement, collect data, and so forth through the rest of the procedure, which culminates in a research report.

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*Exhibits and explanatory materials on the EHT model are available upon request from Professor Gery.

We encourage students to do cross section type projects and thereby avoid the problem of serial correlation. However, we do not avoid the problem of multicollinearity. We help them guard against this and the hidden variable problem by checking out their "experiment" just prior to the computer runs to catch the most blatant oversights.

Thus far, I have skipped over the necessity of teaching some elementary statistics and regression analysis to these novices. It should be kept in mind that while these students have rarely had any formal high school economics, they do have a reasonably good background in mathematics. My colleague, William Carlson, and I have prepared a multiple regression "cookbook." When combined with two to three hours of classroom instruction, the book helps students develop a minimal understanding of the requisite statistical concepts.

Over the years, there have been a number of scoffers and skeptics, including some peer panel reviewers at NSF, who have said EHT could not be done with high school novices. But we have the evidence that it can and is being done with gifted students. In replacing the conventional lecture-discussion method of teaching macro theory with our approach, we found that students showed no significant difference in cognitive learning but their interest level rose considerably. Although we minimize the teaching of formal theory, the pre- and post- TUCE difference averages over six points improvement, which is two points better than the national average for undergraduates taking the basic college economics course. There may be even greater improvement in the affective domain since the summer institute students gain a firsthand impression of the benefits and limitations of the scientific economics study.

TRANSFERABILITY OF EHT TO HIGH SCHOOL SETTINGS

As I see it, there are three problems in developing EHT units for gifted students in high school: the students, the teachers, the "equipment." The last is probably the easiest to deal with. Most schools now have their own interactive computers using BASIC or some other simple language. A variety of statistical software packages containing a multiple linear regression routine are available. We have one at St. Olaf called SODAS (Saint Olaf Data Analysis System) which could be made available to any high school at nominal charge.

The next most difficult problem is identifying and collecting the most gifted social studies students. Fortunately EHT can be broadened to include socioeconomic and political science subjects. Thus, it is quite possible to siphon off the top five to ten percent of all social studies students in a given high school and put them in a special class. Or, out of a given class the teacher may identify the top students who can be encouraged to do EHT as a term project, probably in lieu of other featherbedding assignments.

The most difficult problem is likely to be with social studies teachers who are unprepared to handle EHT units. Two solutions come to mind. The social studies teacher can team with a mathematics teacher familiar with regression techniques and together have a special class for gifted students. Or future inservice training institutes for social studies teachers might well stress EHT. These institutes should probably be a mixture of economic content and multiple regression methodology. Teacher participants would run through their own EHT projects and then be expected to direct several gifted students in similar projects during the ensuing school year.

In conclusion, it should be noted that EHT is a labor-intensive teaching function. It shares this attribute with many other special purpose teaching models, including, I suspect, the one proposed by Professor Banks for ethnic minorities. Fortunately, both hardware and software are now available to reduce the labor input to manageable proportions.

My plea is to do all else that needs to be done, including the Banks' or some alternative model for confronting the existential situation of ethnic minorities, but do not ignore the gifted students. Let us put them in the economics ''laboratory'' where they can share the joys and frustrations of being social scientists firsthand.

A Response to "Economic Education for Ethnic Minorities"

June V. Gilliard

Two aspects of the Banks paper are examined in this response. First, the respondent explores some of the assumptions underlying Banks' stated goal for economic education—helping youth attain the knowledge, attitudes, and skills needed to maximize their economic, social, and political options. Gilliard contends that although this is a worthy goal, it assumes a range of alternatives which are in fact not available to minority youth. Second, Gilliard suggests that too often economic education programs which are designed for minority youth are ineffective because they do not account for current pressures in the school setting such as the "back to basics" and accountability movements. She believes these school realities, plus cultural differences, must be attended to if economic education programs are to be effective with minority students.

In my response to Dr. Banks' paper, I should like to (1) make several observations regarding what he has stated as the goal of economic education for ethnic and racial minorities, and (2) comment briefly on several problems currently confronting elementary and secondary schools and the implications of these for programs in economic education. I have chosen to focus my remarks for the most part on those groups Banks describes as "powerless minorities." In many of our urban centers the "powerless minorities" constitute a majority of the school population. While a considerable amount of time, effort, and money have been expended to develop educational materials and programs for these groups, many of the new materials and programs have proved equally (and in some instances, more) ineffective than those they were designed to replace.

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THE GOAL OF ECONOMIC EDUCATION

Banks states that the major goal of economic education for minority youth should be to help them to attain the knowledge, attitudes, and skills needed to maximize their economic, social, and political options. I have no quarrel with this statement. In fact, if the goal were achieved, I would say the economic educators had done an excellent job indeed. It is imperative to note, however, that underlying the goal statement is an assumption that there exists a range of economic, social, and political alternatives from which members of ethnic and racial minorities are free to choose.

As Banks notes, despite what appeared to be the broadening of economic and political options in the 1960s, recent studies indicate that alternatives available to certain racial and ethnic minorities have tended to disappear in the first half of the 1970s. Herbert Hill, the National Labor Director of the NAACP was recently quoted in *The New York Times* as saying, "In every category of measurement—unemployment rates, duration of joblessness, in earnings and in labor force entry of young workers—the Black community is being forced back into patterns that were commonplace during the Great Depression of the 1930s" ("NAACP Report" 1976). The condition Mr. Hill describes cannot be totally attributed to the general economic decline. Rather, it is largely a consequence of discriminatory practices which now, as in the past, have been a decisive factor in determining income levels for various groups within American society.

Programs designed for youth from low-income minorities have generally been based on one of two assumptions—that the source of academic failure lay in the culture of the client group or in the educational processes utilized by the school. Educators have tended to operate under the notion that certain cultural manifestations of minorities presented the major barrier to their social, economic, and political advancement. Thus, life-styles, values, and perceptions of low-income groups would have to be altered before they could compete on an equal footing with members of the dominant society. Entrenched in this view is the belief that the educational system has the capacity to effect social change.

There are those who contend, however, that those features of minority culture which set it apart from the dominant culture constitute a necessary and realistic adaptation to the hardships and deprivations that result from economic and political exploitation. Thus only elimination of the latter will effect change in significant aspects of the culture of low-status groups (Flude 1974).

Elimination of discrimination will require more than providing for what is presently perceived as the educational needs of minorities. It requires change in the perceptions and manifested values of members of the majority population. To the extent that one's perceptions and values are shaped by what one learns in school, this change constitutes a major educational task.

From the perspective of many minority youth (and adults), education suffers from a "credibility gap"—a gap far more extensive than educators realize. With regard to the education of ethnic minorities, Vine Deloria, author of *Custer Died For Your Sins*, states:

> *The ethnic student, be he or she at college or primary level, absorbs his or her experience at the same rate and in the same manner whether those experiences are in the classroom or on the streets. In doing so they demand a new criterion of truth, and spot stalking horses and hypocrises far better than we do. When teaching, we often present them with our beliefs and suffer rejection when they consider them as possible interpretations among a number of possible interpretations* (Deloria 1973, p. 135).

If we are to satisfy the criterion of truth about which Mr. Deloria speaks, programs in economic education must reflect the reality of the world in which we live. This means more than simply recognizing that in all societies there is a general discrepancy between how the economic system operates in theory and how it operates in practice—between "the way it is" and the "the way it is supposed to be." It also means recognizing the fact that "the reality of the system" for some groups is not always reality for others in society.

CURRENT SCHOOL PROBLEMS AND ECONOMIC EDUCATION

A major aspect of the problem involved in providing for the economic education of minorities is that neither economic education nor the teaching of minority youth occur in isolation from other aspects of the school. Consequently, in our concern for meeting the needs of minorities we must also be concerned with the institutional arrangements through which these needs are to be satisfied.

Currently schools are under considerable pressure to "get back to basics" i.e., the teaching of the 3 R's and oral communication skills. If one looks closely at educational issues raised by parents of minority youth, it becomes apparent that the intensity of the demand for teaching basic skills is no less (and in some communities may even be greater) among minorities than among the majority group in the society.

Concomitant with the "back-to-basics" movement is the demand that schools be held accountable for what students learn or fail to learn. This includes learning outcomes not only in the basic skills but learning outcomes in all instructional areas. Increasingly, schools are finding it necessary to redefine instructional programs in terms of relatively specific behavioral outcomes.

A third problem facing most schools is one commonly referred to as the "crowded curriculum." Over the years schools have tended to respond to demands for curriculum change by increasing course requirements or adding new elective studies. The expansion into new areas of study in most instances has taken place without a comparable decrease in traditional offerings.

These and similar problems will have considerable effect on the degree to which programs in economic education can or will be implemented in the schools. No matter how accurate the assessment of needs or the excellence of program design, unless the programs are implemented and used in the manner intended, real outcomes in economic education for minorities will not change. We must be cognizant of the fact that those whose interest we wish to serve may have other interests to which they have assigned higher priority. To the extent we are able to design programs which serve multiple needs and interests, we increase the probability that such programs will be used in the school. Thus, if we are to provide programs which serve the interests of both the prime client group (students from ethnic and racial minorities) and the schools, we need (1) to design programs which serve not only the objectives of economic education but also basic skills objectives, (2) to explore means by which economic education can be incorporated into existing school curricula, and (3) to state as specifically as possible the goals and objectives to be accomplished.

If we are to succeed in our efforts we will need to design programs which incorporate minority cultures and are attentive to individual interests and teaching styles. Providing for the economic education needs of minorities involves not only identifying needs in knowledge, skills, and attitudes, but also identifying curricular and instructional alternatives through which these may be acquired. It may well be that the latter will prove the more difficult task.

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Part IV Applying Economic Education

Needed Materials in Precollege Economic Education—*James E. Davis*
    Response—*James O. Hodges*
    Response—*Suzanne W. Helburn*

Current and Future Needs for Teacher Training in Economic Education—*James A. Mackey, Allen D. Glenn, and Darrell R. Lewis*
    Response—*Harris L. Dante*
    Response—*Lawrence Senesh*

Needs for Evaluation in Economic Education—*John C. Soper*
    Response—*Phillip Saunders*
    Response—*Jacqueline Kosecoff*

Male-Female Differences in Precollege Economic Education

Helen F. Ladd

Noting that economics is a profession dominated by males, the author of this paper examines the reasons for this situation. Ladd first reviews the research concerning male-female differences in ability to learn economics and concludes that there are no sex-based learning differences relevant for economics. However, she does believe that factors such as parents' and teachers' perception that economic study is more appropriate for males than females does discourage women from going into the field. To acquire more data on these factors, the author recommends that three research projects be undertaken to examine the exposure of girls to precollege economics, the characteristics of secondary economics teachers, and the sex bias in economics curriculum materials. Ladd concludes by suggesting five specific actions for increasing the number of women in the economics profession.

The economics profession is dominated by males. According to the 1970 Census, women account for only 12 percent of all economists and 14 percent of those economists teaching at colleges and universities (U.S. Department of Commerce 1973). In addition, far fewer women than men are currently training to become economists. A 1973 study of 57 major American economics departments found that women constitute only 12 percent of full-time Ph.D. candidates, 14 percent of full-time M.A. candidates, and 15 percent of senior economics majors (Strober 1975, p. 92). In light of this, the American Economic Association has resolved that ". . . to redress the present low representation of women in the economics profession, the Association shall actively

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encourage the study of economics by women at all levels of education" (Committee on the Status of Women 1973, p. 1053). Most of the guidelines for action proposed in response to this resolution by the American Economic Association Committee on the Status of Women in the Economics Profession (CSWEP) relate to the college or graduate level. From CSWEP reports and from questions in a major CSWEP survey, however, it is clear that the Committee believes increasing precollege training in economics for women is essential for achieving the goal of increased female representation in the economics profession.

This, combined with the more general concern of economists, business leaders, economic educators, and foundations with raising the level of economic literacy of the American public, both male and female, provides impetus for research into male-female differences in the learning of economics at the precollege level. Research is needed to determine the nature and extent of barriers to the learning of economics by young women at the precollege level, and if the barriers exist, to develop appropriate strategies to counter them.

The first section of this paper inquires whether women are any less able than men to learn economics at the precollege level. The second section presents three hypothesized sex-based interest and attitude differences relevant for economic learning. Section three proposes a research agenda, and the fourth section concludes with suggestions for increasing the quantity and quality of economics for women at the precollege level.

THE ECONOMIC LEARNING ABILITY OF WOMEN

Are there differences between males and females which make it possible for one sex to learn economics more easily than the other? As a female economist and as a teacher of economics at a liberal arts college for women, I believe young women are able to learn economics just as easily and well as young men. This does not mean that all young women do in fact learn economics as well as men, only that they are capable of doing so.

The literature on sex-based differentials in learning, as summarized by Eleanor Emmons Maccoby and Carol Nagy Jacklin, appears to support my basic belief that there are no sex-based learning differences relevant for economics (Maccoby and Jacklin 1974). With respect to overall intellectual ability, Maccoby and Jacklin conclude that empirical studies show no consistent evidence of differential intellectual ability or cognitive style* and that "a sex difference in the effects of learning and teaching environments probably does not [exist] (Maccoby and Jacklin 1974, p. 75). Possibly these findings are too general to apply to economic learning which may require certain specific abilities. Although Maccoby and Jacklin review no studies relating to economic learning, they summarize other studies examining possible sex-based differentials in a variety of abilities such as verbal, quantitive, and analytic skills. The pertinence of this research depends on determining the specific skills most useful to understanding economics at the precollege level. Analytic ability and concept mastery are often assumed to be the two skills most required for economic learning. Recent studies find no significant sex difference in either skill. Hence, Maccoby and Jacklin conclude that the belief that boys are more "analytic" and that girls are better at rote learning and simple repetitive tasks does not appear to be true and believe that previous research purporting the analytic superiority of boys was too narrowly confined to visual spatial skills. Consequently, no sex-related ability differences relevant for economic learning are implied.

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*Maccoby and Jacklin recognize the distinction between tests of ability and tests of achievement, but since the distinction becomes blurred in practice, they analyze the two kinds of data jointly.

If economics at the precollege level requires more quantitative ability than verbal ability (a debatable issue), however, some differential learning ability for economics may exist. Evidence suggests that boys may have an advantage in quantitative skills and girls in verbal skills. The studies measuring quantitative skills are not clearcut, however, in part because it is difficult to control for visual spatial skills. The results of the quantitative ability studies vary by sample and by nature of the test, leading Maccoby and Jacklin to conclude that "the magnitude of the sex differences varies greatly from one population to another and is probably not so great as the difference in spatial ability" (Maccoby and Jacklin 1974, p. 352; see also Garron 1970).

What, if any, are the policy implications of these research findings? To the extent that the studies show no difference in learning ability relevant for economics, there is clearly no basis for policy. However, if future studies provide evidence of differences in the ability of boys and girls to learn economics, these differences are not likely to be relevant for policy for at least two reasons.

First, these studies generally focus on differences between means, with the null hypothesis that the mean learning ability of boys is no different from the mean learning ability of girls. But means are only one summary measure of an entire distribution of learning abilities and they may not be very useful in deciding how to change the nature of instruction. To illustrate, assume that the variation in girls' quantitative abilities is the same as the variation in boys' abilities. Figure 1 portrays the two different distributions on the assumption, consistent with the Maccoby and Jacklin findings, that the means differ by .5 standard deviations.*

Now consider an economic education policy directed toward 95 percent of the young men. Provided the two distributions are normal as drawn, this policy would be directed at learning abilities between 1.96 standard deviations below and 1.96 standard deviations above the male mean. The shaded area under the female distribution represents the percent of the young

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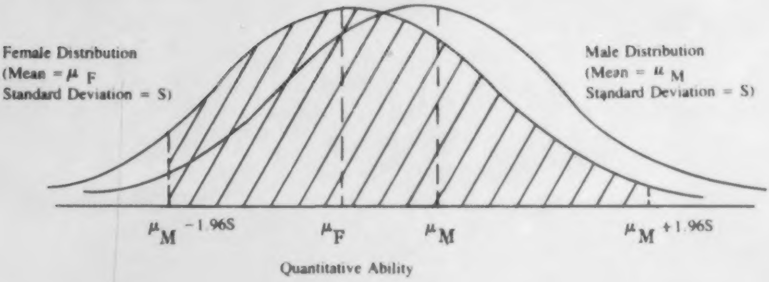
*The authors cite three studies with large samples dealing with quantitative ability. The first shows boys' math scores are .66 standard deviations higher than girls' at the 12th-grade level, the second shows no sex differences, and the third shows boys with a .2 standard deviation superiority.

Figure 1



women who would be reached. Normal distribution tables show that this includes 92 percent of the young women.* Hence, a policy based on male quantitative abilities will reach a substantial portion of the women, even with the mean difference reported by Maccoby and Jacklin. The point is that emphasis on means ignores the substantial overlap in the two distributions.

The above analysis overstates the effect of quantitative ability differences. Maccoby and Jacklin report that the variation in quantitative ability (as measured by the standard deviation) is up to 15 or 16 percent higher for males than for females (Maccoby and Jacklin 1974, p. 119). The effect of this is to increase the percentage of young women affected by the male-directed policy to 95 percent.** Hence, even in the case of quantitative abilities, where the strongest evidence of differential ability has been found, the magnitudes are insufficient as a basis for policy even on the assumption that quantitative ability is more important than some of the other abilities for economic understanding.

As mentioned above, studies do show that boys excel in spatial ability. If we ignore the overlapping distributions (by assuming unrealistically, for example, that all boys are identical and all females identical), does this imply that girls and boys should be taught in different ways? Should boys, for example, be taught more by graphical methods and girls more by descriptive and intuitive methods? A recent review paper by Robert Glaser, summarized by Maccoby and Jacklin, found no evidence that individuals learn better if instructional programs are aimed at their area of strength (Glaser 1972). In fact argues Glaser, educators should not draw only on children's strong skills but should focus on utilizing all skills. When this teaching philosophy is combined with realistic overlapping ability distributions for males and females, it is difficult to argue for differential treatment based on ability differentials for young women and young men in precollege economics.

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*Let μm and μf be the average quantitative ability of boys and girls respectively and S_f the standard deviation of the two distributions. Then the interval that includes 95% of the male abilities goes from (μm −1.96S) to (μm +1.96S). This is equivalent to the interval (μf − 1.46Sm) to (μf +μ2.46S) expressed in terms of the female mean. Using normal distribution tables, the area under the female distribution over this interval is .92 (= .4279 + .4931).

**In this case, we have the interval (μf + .5S −1.96 (1.15)S_f) to (μf + .5S_f + 1.96 (1.15)S_f) that simplifies to (μf − 1.75Sf) to (μf + 2.75Sf) where S_f is the standard deviation of the female ability distribution. Referring to the normal distribution table, we find the area under the female distribution over the interval to be .95 (= .4599 + .4970).

OTHER REASONS FOR DIFFERENTIAL ECONOMIC LEARNING BY SEX

Studies of learning differences in economics, as reported by George Dawson elsewhere in this volume, indicate that girls learn economics equally as well as boys in the elementary grades. At the high school level, the findings are mixed. Dawson cites the Bach-Saunders study in support of the male superiority thesis and studies by Dawson-Bernstein, James B. Nelson, and A. Dennis Gentry in support of the no-difference hypothesis.

Two recent studies investigating male-female learning differences in the college-level introductory course deserve mention. In a 1974 note in the *Journal of Economic Education*, Rendigs Fels and Ben Bolch state emphatically that "[we] now know beyond a reasonable doubt that performance in elementary college economics is sex linked" (Fels and Bolch 1974, p. 64). They base this on a summary of previous college-level studies supporting this conclusion, a brief criticism of two studies finding no sex-linked differences, and their own empirical investigation using a new test administered to students who had just completed the introductory economics course at Vanderbilt University. Controlling for age, previous exposure to quantitative methods, previous exposure to calculus, ability as measured by verbal and quantitative SAT scores, and achievement as measured by grade point average, Fels and Bolch find a 3½ point mean difference between men and women on a 100 point test, with the coefficient statistically significant at the .05 level. From this they conclude that men have a comparative advantage in elementary economics and women a comparative disadvantage.

This finding has been qualified by John J. Siegfried and Stephen H. Strand in a recent unpublished study (Siegfried and Strand 1975). Using a sample of 153 Vanderbilt University students from the spring 1975 semester and a test instrument targeted at the material covered in the course, the authors conclude that women *learn* the same amount as men during the instructional period of the introductory course, where learning is measured by the percentage of the gap in economic understanding closed by the introductory course.* Although the learning of women students in the introductory course

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*The measure used by Siegfried and Strand is **(posttest - pretest)/(100 - pretest)** where 100 is the maximum possible score, pretest refers to the score the student received on the test the first day of classes and posttest to the score the student received after the course. Unfortunately, the authors give no justification for preferring this definition of learning to the absolute measure, change in test score. Yet when they include the pretest score as an independent variable with final score as the dependent variable (a specification derived from the measure of learning, change in test score), the coefficient of the sex variable again becomes statistically significant in one of the regressions.

appears to be as high as the learning of men in the same course, the authors argue that women end up at a lower level, as in the Fels and Bolch study, because they start the course at a lower level of economic understanding.

Thus, in the course of clarifying the meaning of the coefficients of sex variables in studies at the college level, the Siegfried and Strand study emphasizes the male-female differences in exposure to economics at the precollege level. A logical next step is to determine whether their finding that women start out the college level introductory course with less knowledge of economics than men carries over to high school seniors in general. The assumption underlying the remainder of this paper is that it does.*

Several explanations for differential male/female exposure to economics at the precollege level may be hypothesized. The first hypothesis is that the study of economics is perceived by parents, teachers, and counselors to be more appropriate for males than for females. Although the male domination of the profession undoubtedly reinforces this view by providing few female role models, the perceived subject matter of economics is also likely to be an important determinant of the sex stereotyping of the discipline. Girls, according to the traditional view, are not interested in business, finance, and the "impersonal" workings of the economic system; instead they tend to be interested in people-oriented fields like English and history. That economic concepts are, or can be, applied to a wide range of situations including both personal and social decision making is generally not understood by the non-economist. Instead economics is often assumed to be closely related to business, a profession until recently reserved primarily for males. Why should young women submit themselves to studying the "dismal science" when they are not interested in markets and other impersonal economic institutions and when they perceive its lack of relevance to them given the future roles available to women in the economic system?

The perceived difficulty of economics resulting from its quantitative analytic approach may be a second reason why precollege girls shy away from the field. Evidence shows that girls have a higher tendency to avoid quantitative courses than do boys, reflecting factors such as parental and teacher advice and perhaps fear of quantitative subjects since girls "are not good at mathematics." For example, only eight percent of the women applicants to the University of California at Berkeley in 1972 had taken four years of high school mathematics, in contrast to 57 percent of the men applicants (Sells 1974). At Wesleyan University, approximately 50 percent of the male undergraduates in the classes of 1974 and 1975 elected at least one

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*Unlike some other disciplines, economics knowledge at the high school level is not generally tested nationally. In a recent study dealing in part with social studies knowledge, however, it was found that "at age 17, 62% of the males, compared to 54% of the females, understood that the government receives the largest portion of its revenues from income tax. At this same age, more males (55% compared to 48% of the females) understood the term monopoly" (Ina V. S. Mullin, *Educational Achievement and Sex Discrimination*. Denver, CO: Education Commission of the States, n.d.).

mathematics course prior to graduation in comparison to 32 percent of the women (Wesleyan Department of Institutional Research 1975).

This tendency for girls to minimize their study of mathematics potentially has both a direct and an indirect implication for precollege economics. First, to the extent that economics is perceived as quantitative, it also falls into the category of courses to be avoided. Second, the weaker quantitative and analytic background of high school women may render the study of economics more difficult for them than for their male counterparts.

A third possible reason why young women may have less economic knowledge than young men just finishing high school is that female economics students may learn less than male students in the classroom because of sex bias in either teacher attitudes or materials. While the Siegfried and Strand findings of equal economic learning by men and women in the college-level introductory course suggests this may not be a factor at Vanderbilt University, its potential significance at the precollege level should not be minimized. If economics teachers give the impression that economics is an inappropriate course for female students or if teachers or texts repeatedly use examples demonstrating insensitivity to the feelings, attitudes, and interests of female students, it is reasonable to suppose that female students will dislike the course and will learn less than the male students.

A RESEARCH AGENDA

Considering the evidence described in the first section, we must conclude that it would probably be a waste of resources to study further the question of whether girls *can* learn economics as well as boys at the precollege level. The evidence suggests either that girls are as able as boys to learn economics or, if they are not, that the differences are too small to be relevant for educational policy. The need for additional research is demonstrated in section two, and arises in large part from the Siegfried and Strand finding at the college level that the female students have lower initial levels of economic understanding than do the male students. Research is needed to determine the general validity of the Siegfried and Strand finding and the importance of each of the three explanations offered here for lower female economic understanding at the precollege level.

As a first step, I propose the following fact-finding research projects.

1. Exposure of Girls to Economics at the Precollege Level. Children are exposed to economics and economic roles in a variety of ways, only one of which is formal classroom teaching. At the elementary school level, if a teacher teaches economic concepts all his/her students are exposed. Thus, the extent of formal exposure of girls at the elementary level is inseparable from the more general issue of the extent of economic teaching at this level and will not be further discussed here.

What about the more subtle ways in which children at the elementary level learn about the economic system and the different economic roles for men and women? When and how do children form their perceptions of these roles? What effect, for example, do elementary school texts, story books, and teacher attitudes have on the formation of children's ideas about economic man and economic woman? Are women presented realistically? Is the work women do presented as productive (see Maccia et al. 1975; Key 1975; Frazier and Sadler 1973)?

The high school level differs from the elementary in that often economics courses or the courses in which economic analysis plays a part are elective. To what extent do girls take these courses compared to boys? Does limited mathematics background inhibit girls from taking economics at the precollege level?* Survey evidence gathered by CSWEP on professional women economists shows that both the fathers and mothers of female economists are better educated than the parents of male economists (Strober 1975). Do these and other socioeconomic differences exist between boys and girls electing economics at the high school level? More generally, are certain groups of girls more likely than others to be exposed to economics, both inside and outside the classroom? What socioeconomic differences account for this?

2. Characteristics of High School Economics Teachers. High school economics teachers and the social science teachers who provide instruction in economics play an important role in shaping student attitudes toward economics. What proportion of these teachers are female? If economics at the high school level is taught exclusively by men, while other social sciences are mainly taught by women, does this reinforce the view that economics is a male-oriented field? To what extent do the attitudes and training of economics teachers condition them to indicate that this is a male-dominated field? In addition, how does the training of female economics teachers compare with that of their male counterparts?

3. Sex Bias and Sex Role Stereotyping in Teacher Attitudes and Materials. Sex bias in both teacher attitudes and materials is a potentially powerful force in turning girls away from the study of economics. What do we know about this? Do teachers of economics at the precollege level believe that women are less able in economics than men? Do they believe that economics is more useful to men than women? How does this affect examples and illustrations used in classroom teaching? How does it affect the teacher's expectations regarding student performance?

It is significant to note that the criteria set forth by the American Economic Association Textbook Study Committee in 1960 and criteria used in subsequent studies to evaluate elementary and secondary school textbooks and materials include no reference to sex bias (see the Davis paper in this volume). Does the male orientation of the discipline affect the content of the materials? Is this the result of male dominance within the profession? Or is it the result of the different economic roles assigned to men and women by society? What is the best way to identify the nature of possible sex bias in these materials?*

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*The American Economic Association CSWEP found that professional women economists had strong mathematics backgrounds, as evidenced in part by their 3.4 mean year of mathematics in high school. CSWEP concludes that this "is an important finding for it supports those who observe that the absence of a strong mathematics background can inhibit women who might otherwise choose to major in economics" (Strober 1975, p. 95).

As a second step, I propose detailed exploration of the three hypothesized explanations presented in section two. Are the explanations valid? Is one more powerful than the others in determining the relative level of female economic understanding? These and other questions need to be answered before we can determine the most effective way to increase female economic understanding at the precollege level.

PROPOSED REMEDIES

If the explanations suggested above are valid, the following actions or remedies appear desirable.

- More women are needed throughout the economics profession. As the number and visibility of women in the profession increases, the notion that economics is for men only will be weakened. This is obviously a large task, but one to which the American Economic Association Committee on the Status of Women in the Economics Profession (CSWEP) is already devoting substantial energy.
- More women should be encouraged to become economics teachers at the precollege level. This might be achieved by additional counseling during teacher training programs to counter possible student teachers' views that economics is for men only. In addition, training of all precollege economics teachers should include exposure to the work of female economists.
- Economics materials must be purged of all sex bias. All new materials should be explicitly evaluated for their sex bias. In addition, sex role sterotyping should be avoided. This does not mean that facts and figures on such things as the male-female composition of the labor force should not be presented. To the contrary, it is important for girls and boys both to appreciate the extent of occupational segregation and

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*There are two separate issues here: the treatment of women and sexist language and examples. For a study of the treatment of women in history textbooks, see Janice Law Trecher, "Women in U.S. History High School Textbooks," in *Women in Education*, Elizabeth Steiner Maccia et al., eds. As an example of the type of sex bias in language and examples to be avoided, consider the following quotation from a college textbook: "The 'fit' between the money supply and the cost of living exists, but it is rather loose and a bit baggy. Like a 36C liberated woman, things tend to jiggle around quite a bit" (Lawrence S. Ritter and William L. Silber, *Principles of Money, Banking, and Financial Markets*, New York: Basic Books, 1974, p. 200).

discrimination against women. Examples and analysis, however, should emphasize that both sexes are capable of filling all economic roles.

- Female students must be encouraged to take quantitative and conceptually oriented courses. This requires positive action on the part of guidance counselors and advisors to counter the resistence of girls to quantitative abstract thinking.

- We must interest more women in economics at the precollege level. In part, this involves increasing the demand of all students, parents, and school boards for economics at the precollege level as discussed by W. Lee Hansen in his paper within this volume. One possibility is to increase the material in economics courses on household decision making in order to personalize economics to a greater degree. Whether or not such a policy is desirable needs further investigation, but, in any case, "personal economics" should not be directed specifically at women. It would clearly be counterproductive to have students perceive that "personal economics" is for girls and more traditional economics is for boys.

It would be undesirable, however, to respond to what we think are girls' particular interests in an attempt to attract girls to economics. Girls, as individuals, have differing interests as do individual boys, but the differences within each sex almost certainly dominate differences across sexes. These differences suggest the need for variety in topics and examples in economics courses for both boys and girls. The only reason for investigating the nature of these interest differences across sexes is to help teachers eliminate such differences in the future.

One sex-related interest difference may require special attention, however. If girls shy away from economics because they perceive it to be business related, positive action may be required to attract them to economics. As a first step, parents, teachers, guidance counselors, and students need a better understanding of the discipline of economics. The use of economic tools and concepts such as scarcity, opportunity cost, and cost-benefit analysis, in a wide range of situations, including both personal and social decision making, needs to be stressed. In addition, economics' relevance to the average citizen as well as to the financial or business manager requires more emphasis and elaboration. This educational process about the nature of economics, while important for both boys and girls, may be particularly relevant for girls who have the greater initial resistance to economics because of its perceived business orientation.

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Needed Materials in Precollege Economic Education

James E. Davis

In addressing current needs in economic curriculum materials development, the author begins by reviewing past analyses and evaluations of precollege materials. In conducting his own analysis of recently published economic materials (including audiovisual materials, games and simulations, and text materials), the author considers both the content and pedagogy of the materials. Among his conclusions, Davis finds that the treatment of economics concepts and generalizations, while improved since the 1961 Task Force Report, is still inadequate and that most precollege economics materials are unimaginative in teaching/learning configurations. From his review, the author recommends several development considerations.

"Dad, is it true that the big bosses of the Bicentennial are Exxon and Gulf?" (seven-year-old son). "Daddy, why do I have to learn all the names of the rivers in Colorado?" (seventh-grade daughter). "Jim, why is it that school administrators (principals) become jealous when one junior high school in a district installs a new program and another one doesn't?" (wife who teaches seventh-grade social studies). These are the kinds of questions I am asked during a typical evening in the Davis household.

The first question frightens me. My son obviously has been watching some of the ads and programs on television and has an image that Exxon and Gulf run the Bicentennial. If I say no to his question, I'll have to come up with some evidence to support the negative response—and I don't have much evidence that would satisfy a seven-year-old. If I say yes, I might be correct. The second question disgusts me. There are major rivers in Colorado. They have vital functions such as providing drinking water for Denver, irrigation water for

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agriculture in the Southwest, and electricity for Los Angeles. But I don't know why my daughter has to learn all the names. I'd prefer she learn something about how rivers are used. The third question puzzles me. Although I've been in the business of trying to foster educational change for eight years, the query is a new one to me. Does administrative jealousy help or hinder educational improvement? I don't know.

In a real sense the "typical" questions each relate, or should relate, to this conference. The first question has to do with a child's image of the world—the corporate world and its role in society. The second has to do with the nature of the social studies curriculum—what it is, what it ought to be. The third question has to do with the process of change in education—how it happens, how it should happen, what effects result from change.

The questions and issues also relate to my assigned task for this conference—to assess precollege curriculum development needs. To address this topic and its related issues, I will first review some of the past evaluations of economics curriculum materials. Then I will offer my own assessment of some recently published materials. After my assessment I will conclude by posing some difficult questions and taking a look into future potentialities for economic education.

PAST ANALYSES AND EVALUATIONS OF ECONOMICS CURRICULUM MATERIALS

American Economics Association Textbook Study Committee

In 1959 and 1960 a Textbook Study Committee of the American Economics Association examined secondary-level textbooks in economics, social problems, and United States history. The criteria for analysis were as follows.

> *1. The principal objective of high school education in economics should be good citizenship, not the preparation of students for a college major in economics.*
>
> *2. Economics is a social science and emphasis should be placed on the interdependence of decision-makers and the operation of economic systems, not on the solution of problems of the individual.*
>
> *3. The economic understanding sought should concern vital matters, not trivia; and the coverage of these should be balanced, including (as examples) macro- and microeconomics, the generation of change in a system as well as its statis operation, and international as well as domestic problems.*
>
> *4. The approach to economic matters should be essentially analytical, though larded heavily with factual and descriptive material on economic institutions and their development.*

> *5. The nature of value judgments should be explained; whenever relevant they should be identified; and the role they play in shaping economic system, policies, and controversies should be clearly stated. Controversial issues should not be avoided, but used to stimulate interest and to distinguish between facts, value judgments, and impartial analysis as these apply to vital matters.*
> *6. Factual and analytical errors should be kept to a minimum* (*Economics in the Schools* 1963, p. viii).

The Committee's conclusions reflect a rather sad situation:

> *It is the Committee's considered opinion that the high school students whose knowledge of economics has been acquired through courses circumscribed by the textbooks principally used in the three social studies courses (including economics) would be quite unprepared to cope understandingly with most problems of economic public policy* (*Economics in the Schools* 1963, p. ix).

The following broad generalizations were set forth by the Committee:

> *1. Most texts are oriented around the individual.*
> *2. Significant topics are omitted; others receive unwaranted attention.*
> *3. Routine description dominates analysis.*
> *4. Value judgments are seldom identified or examined.*
> *5. Presentations are marred by some errors of fact and analysis.*
> *6. Some redeeming features exist.* [The Committee felt that, given the above criticisms, a student would on the whole be better off by having read the texts. At least the student would have some minimum understanding of economics and would be able to communicate more effectively.] (*Economics in the Schools* 1963, p. ix-xii).

Townshend-Zellner Study

In a paper presented at the Joint Council on Economic Education's (JCEE) session of American Economic Association (AEA) annual meeting in December 1969, Norman Townshed-Zellner reported on his analyses of 12 post-1963 economics texts used in the Los Angeles metropolitan area. Supplementary text materials were omitted so the analysis would be comparable with the 1959-60 texts analyzed by the Textbook Study Committee. The comparison is shown in Table 1.

The Townshend-Zellner analysis used the same categories as the Textbook Study Committee. His conclusions are somewhat more encouraging than those of the Committee.

> *Compared to this* [the 1963 report] *bleak picture of deficiency, we evaluated roughly half of the current twelve texts as being adequate*

in nine of the ten criteria. In the remaining criterion, namely, the appropriate degree of emphasis on analysis relative to description, we felt that all twelve texts met the standard of at least marginal adequacy (Townshend-Zellner 1969, p. 26).

TABLE 1

Evaluation of Twelve Current Texts On the Basis of Criteria Used in the AEA Textbook Report

Criteria		Evaluation			
		Eight 1959-60 Texts		Twelve Current Texts	
		Adequate	Inadequate	Adequate	Inadequate
A.	Coverage				
	A-1. Treatment of aggregative economics and the problems instability	0	8	6	6
	A-2. Role of government	0[a]	8[a]	6	6
	A-3. Treatment of growth and change	0	8	5	7
	A-4. Treatment of the insatiability of human wants and the scarcity of resources to satisfy them	0[a]	8[a]	8	4
	A-5. Treatment of economics as a social science omitting emphasis on the solution of problems of the individual (as consumer or producer)	0[a]	8[a]	6	6
	A-6. Avoidance of disproportionate attention to individual topics	0[a]	8[a]	7	5
B.	Role of analysis vs. description	0[a]	8[a]	12[b]	0
C.	Quality and competence of analysis	0[a]	8[a]	6	6
D.	Concern with system-orientation and system content	0	8	6	6
E.	Value judgments and controversy	0	8	5	7

a. No precise figure given, but implication was given that all texts were inadequate.

b. Note, however, "We entered the specific disclaimer that appropriate *emphasis* on analysis did not imply that all books evidenced *adequate* analysis. To try to be analytical is one thing, to succeed, another" (Townshend-Zellner 1969, p. 26).

It is important to note that the Townshend-Zellner analysis extended the minimum criteria used by the Textbook Study Committee, although discipline content remained the main concern. The three classifications of "extended" criteria were:

> *1. Further specification of minimum criteria; example: What is the author's focus in the text's opening and closing emphasis?* (Townshend-Zellner 1969, p. 38).
> *2. Other-than-minimum criterion; economics based; Example: is any effort made to treat the interrelations of economics with other social sciences and other areas of study?* (Townshend-Zellner 1969, p. 39).
> *3. Other-than-minimum criterion; not economics-based; Example: Are chapter lengths appropriate for assignment units?* (Townshend-Zellner 1969, p. 42).

The report concludes that as a whole "we have a reasonable number of acceptable ones [high school economics texts]" (Townshend-Zellner 1969, p. 44). This conclusion probably certifies some positive impact of the National Task Force Report, as well as the influence of college textbook writers who entered the precollege field (*Economic Education in the Schools* 1963).

1973 Social Studies Materials Evaluations, Grades 1-12

In 1971 and 1972 the Joint Council on Economic Education (JCEE), with financial support from the Sears Roebuck Foundation, undertook the examination of the economics content of social studies textbooks, grades 1-12. The Council formed four committees to analyze the materials by grade level clusters:

1. Elementary, grades 1-6; analysis of ten textbook series published in 1968 or later.
2. Junior high, grades 7-9; analysis of 39 textbooks published in 1968 or later.
3. High school, grades 10-12; analysis of ten civics or government texts, two problems of democracy series and one problems of democracy text, six geography texts, two anthropology texts, two sociology texts, and three sets of national curriculum project materials in geography, anthropology, and sociology published since 1968.
4. High school, grades 11 and 12; analysis of nine world and ten U.S. history texts published since 1967.

The committees found they could not possibly analyze all the materials available within the grade clusters. Therefore, they selected materials on the basis of recent publication dates and extent of use based on representative samples of school districts.

Analysis criteria were similar for each committee. Although the books were not judged against the detailed outline of the National Task Force Report, the Report was used as a general guideline. Specifically, each committee analyzed the text materials on the basis of the following questions:

> *1. What concepts, generalizations and principles are treated?*
> *2. Are the concepts important and treated in an analytical manner?*
> *3. Is the order of the economic content systematic?*
> *4. Are the economic concepts, generalizations and principles defined, stated or explained accurately?*
> *5. How understandable and interesting is the treatment of economics for the intended audience?*
> *6. How useful are the teaching aids?* (O'Neill 1973, p. 12).

It should be stressed that the purpose of the analyses was to examine the treatment of the economics in the textbooks. Criticisms concerning the treatment of economics should not be generalized to the treatment of the other disciplines (history, sociology, etc.).

The report on the evaluation of elementary texts stated that there was more coverage and to some degree more systematic treatment of economics than what had existed in previous editions. This was especially true for texts at the primary level, grades 1-3. At the intermediate level, grades 4-6, there was less coverage. There was a lack of discipline structure throughout the texts; similarly, there was inadequate treatment of the market system. In all the elementary materials examined, inadequate or inaccurate definitions and errors of analysis were apparent. These inadequacies related to concepts such as goods, services, resources, money, capital, demand, supply, and income (Davison, Kilgore, and Sgontz 1973).

The general shortcomings of all the elementary textbook series included:

> *(a) the absence of a well-developed economic model, illustrating the basic concepts, fundamental relationships among concepts, and a pattern of spiral development; (b) the lack of a new content framework in which concepts can be meaningfully presented in terms of the experience and developmental stage of the learner; or (c) the continued use of conventional content without sufficient restructuring or reinterpretation of this content to fit the newer demands for conceptual development as well as demands for "inquiry" learning processes* (Davison, Kilgore, and Sgontz 1973, p. 60).

Thirty-nine junior high textbooks were analyzed in four categories—United States history (22), civics and government (6), urban problems and the city (3), and world history and cultures, world geography, and area studies (8). The assessment of the U.S. history texts indicated that there was uneven, or no, treatment of economics in the books, that the economic content discussed was oversimplified, and that there was little relationship between what was presented in the texts and the National Task Force Report. (It should be noted here that some of the history texts analyzed for junior high level were actually written for the high school level.) Only one of six civics and government textbooks analyzed had a systematic treatment of economics. Just one of three urban problems books had any identifiable economics content, although there was some focus in the texts on resources, especially natural resources. In the world history and world cultures books there seemed to be considerable attention to economics. However, in all these books there was a lack of systematic treatment of the discipline as well as an inadequacy of clarification and explanation.

The junior high school committee, assuming that analyzing textbooks can give an indication of the nature of the economics taught, stated, ". . . most junior high school students will not attain a satisfactory level of economic understanding" (Watson et al. 1973, p. 43). The committee's final conclusion merits quotation.

> *Most discouraging of all is the economic content found in the "new" books, some of which are the fruit of the prestigious national social studies projects. These books are excellent texts in many ways and are, on balance, superior to what went before them. They will probably be widely used during the next decade* (Watson et al. 1973, p. 42).

The high school committee that analyzed nonhistory text materials added criteria to its analysis that focused on the quality of the material's stated objectives. Using the Bloom Taxonomy, the committee concluded that most objectives in most materials were rhetorical and at the lowest level of the taxonomy (memory). The notable exceptions to this conclusion were the national social studies curriculum projects analyzed.

Concerning the economics content of the materials, the committee's list of criticisms was similar to that of the other committees—lack of analysis, lack of conscious treatment of economics (implying that there was opportunity in the materials for dealing with economics), errors of fact and omission, misapplication of concepts, and lack of systematic organization of economics content. The committee also pointed out that much of the content was bland and issueless. With regret the committee concluded (as had the AEA Textbook Study Committee in 1963),

> *. . . the high school students whose knowledge of economics has been acquired through courses circumscribed by the textbooks principally used in the three social studies courses (government, problems of democracy, and geography) would be quite unprepared to cope understandably with most problems of economic public policy* (Weidenaar et al. 1973, p. 28).

The committee that examined high school world and U.S. history textbooks observed that there had been a great improvement in the attempts to include economics in the texts. In addition to the criticisms which the other high school committee made, the world and U.S. history committee was very concerned that students would not have the opportunity to use (economic) analysis to examine problems in an historical context and to relate such analysis to contemporary problems. Another drawback to the materials analyzed was the lack of narrative to help either students or teachers comprehend a structure of economics or the fundamental concepts of the discipline (O'Neill 1973).

Elementary Materials Evaluation, 1975

In 1975 two of the original elementary evaluation committee members (with another coauthor) published an updated report of five elementary textbook series. Four of the five series had been published since the 1973 report. The authors' analysis showed that the treatment of economics was not as high quality as the treatment in the texts reviewed for the 1973 report. As found in the 1973 report, the best treatment of economics was at the primary level (grades 1-3). The criticisms were somewhat similar to the earlier report—lack of structure, lack of clarity of definition, no discussion of relationships among concepts, too much description, and no analysis.

Interestingly, the 1975 report showed a serious concern about pedagogy. The text series were analyzed based on three general areas: objectives, suggested activities, and evaluation methods. Although critical of the quality of objectives stated in most of the texts (including the rationale or lack of rationale for selecting objectives), the analysts offered some positive comments related to the suggested activities, indicating that there has been considerable improvement in this area over earlier elementary series. The analysts found all the series woefully lacking in the area of student evaluation techniques (Davison et al. 1975).

Two series, *The Taba Program in Social Science*, published by Addison-Wesley Publishing Company, and *Our Working World*, written by Lawrence Senesh and published by Science Research Associates, were not included in the elementary committee's analysis. My judgment of these two series, based on the Committee's criteria, indicates that if they had been included in the survey the resulting conclusions with respect to the treatment of economics and associated pedagogy would have been considerably more positive.

Audiovisual Materials Evaluation

To update an earlier report, the JCEE's Audiovisual Materials Evaluation Committee reviewed 251 films, filmstrips, and transparencies in 1972. (In a 1969 report the committee had recommended only ten percent of approximately 1,000 items reviewed as useful for economic education.) Using the National Task Force Report as a general guideline, a committee of ten professionals in economics, economic education, and social studies education reviewed the materials and approved 107 of the 251 reviewed.

The analysis showed: (1) a preponderance of materials for the upper grades, (2) no contribution of new materials for grades 4-8 since a previous report (1969), and (3) serious underrepresentation of materials in some of the more teachable conceptual areas for grades K-3. Table 2 shows the percentage distribution by grade level and general topic of the committee's recent findings.

TABLE 2

1972 JCEE Committee Evaluation of Audiovisual Materials in Economics

Distribution of Items Recommended by Topic and Grade Level

		K-3	4-8	9-12
A.	General Nature of Economics	-%	-%	100%
B.	Markets, Prices and Resource Allocation	36	16	47
C.	Income Determination, Stabilization and Growth	6	16	78
D.	Role of Government and Economic Institutions	11	11	78
E.	International Economics	-	-	100
F.	Comparative Economic Systems and Economic History	-	56	44

(Kronish 1972, p. 7)

Commenting that 65 percent of the acceptable output was confined to grades 9-12, the committee stated, "Despite more than 20 years of experience proving the contrary, producers of audiovisual materials in economic education appear to be of the opinion that economic analysis cannot be successfully incorporated into the work of the earliest grades in school (Kronish 1972, p. 7).

Comments on Previous Materials Evaluations

In previous materials evaluation studies, the evaluators' prime concern was the quality of content treatment in the products. Even though the report titles indicate that the analysts evaluated teaching strategies, little of this type evaluation is actually reported. One of my concerns about the analyses is their lack of emphasis on pedagogy—a consideration of the author's view of the discipline, of society, and of education; the relationships among learning objectives, content, instructional theory, and teaching strategies; conditions that relate to learning; and evaluation. (Note: These general categories closely parallel the categories of the *Curriculum Materials Analysis System* (CMAS) developed by the staff of the Social Science Education Consortium in 1967 and revised in 1971.)

We have known for some years in education that teaching involves much more than just presentation of content. Most of us would agree that the content of what is to be taught is important, perhaps the most important ingredient in teaching-learning situations. However, vital criteria in evaluating materials are left out when short shrift is given an author's view (rationale); what we want students to learn, feel, and do (objectives); how facts, concepts, generalizations are to be learned (instructional theory and teaching strategies); under what conditions learning is to take place (antecedent conditions); and whether learning did take place and how students and teachers viewed the experience (evaluation). If we learned one important thing in the curriculum materials development movement of the sixties, it was that we needed to become much more concerned and knowledgeable as developers about schools, kids, teachers, and teaching. Hopefully, if the opportunity comes to develop new economics materials, we will be willing to draw on the knowledge of those developers who have wisdom to share.

Beyond these general concerns, I have some specific reservations about each of the past analyses. For example, the AEA textbook committee paid almost no attention to pedagogy. However, the committee did place some emphasis on whether the author explained the nature of value judgments presented in the economic texts (i.e. the author's rationale). The overriding concern about the quality of content treatment was probably appropriate 15 years ago. Economics was becoming more a subject of study in the precollege curriculum than ever before and economists had a stake in judging how the discipline was handled. In my judgment, however, evaluation of current textbooks based solely on treatment of content is inappropriate today.

The Townshend-Zellner report which extended the textbook committee's criteria did show two pedagogical concerns. First the author pointed out that "monolithic academic orientation" of the high school texts judged "acceptable" would benefit only the more capable students and would be ineffective for the below-average, slow-reading, culturally disadvantaged student (Townshend-Zellner 1969, p. 67).

The JCEE committees were asked to assess the understandability and interest of the economics presented, as well as the usefulness of the teaching aids. Pedagogical concerns were addressed in varying degrees. The 1973 elementary textbook committee expressed a concern with the lack of treatment of economics at the intermediate grade level (grades 4-6) and called for providing content help for teachers at all levels in text guides. The 1975 elementary committee did a very thorough job in analyzing teaching strategies. Unfortunately, the committee found the five elementary series void of sound pedagogy.

While the junior high committee encouraged developers to provide content assistance for teachers, it offered little in the way of analysis or critique of the materials' pedagogy, except to state concern about the sequencing of economics content.

The high school committee that examined texts in government, problems of democracy, geography, sociology, and anthropology was very concerned about the level or quality of learning objectives (low-level memory to higher-level analysis). However, the committee found that most materials reviewed contained mostly lower-level learning objectives. Other kinds of pedagogical concerns were not examined in depth by the committee. The high school committee that analyzed history texts focused on inquiry-oriented materials. Although the committee did not define any particular inquiry strategy, it was concerned with students being able to define problems, hypothesize, and draw conclusions. The committee's conclusion that inquiry provides the greatest potential for teaching economics clearly points to possible new developmental directions.

The audiovisual materials committee did express a concern that available materials had not reached "the full potential of instructional technology" (Kronish 1972, p. 11). The committee bemoaned the structure of most of the materials that presumed a traditional classroom with students in a passive learning role.

Having completed this review of published evaluations on social studies and economics curriculum materials, let us turn our attention to assessing more recently published materials for teaching precollege economics.

ANALYSIS AND EVALUATION OF RECENTLY PUBLISHED MATERIALS

In early November 1975 I wrote letters to 26 publishers of economics materials, naming the economics materials I wished to review. In addition, I visited over 50 publishers of social studies materials during the annual National Council for the Social Studies (NCSS) meetings in Atlanta in late November 1975. In response to my request to review economics materials at the NCSS meeting, I received some interesting comments from publishers. "Oh, you want some of our stuff on consumerism." (No, I didn't.) "Let me see, we have some new material on career education that is related to economics." (It wasn't.) "We didn't bring our text with us, but we'll be happy to send you a copy." (They did.) "We have one book out, but it doesn't have a teacher's guide." (It didn't.)

My cutoff date for accepting review materials was January 1, 1976. Materials arriving after that date are not included in the report that follows. Many materials, especially simulations and games, were already available in the Resource and Demonstration Center of the Social Science Education Consortium. Three categories of economics materials were examined—audiovisual materials, games and simulations, and text materials (including basic economics texts and supplementary print materials). It is fairly safe to assume that the materials reviewed here are representative of what is available, especially in light of previous reviews.

Evaluation of Audiovisual Materials

Twenty-two filmstrip and filmloop series were examined. Using criteria similar to those of the audiovisual materials committee (see Table 2), I judged nine of these series to be acceptable, mostly on the basis of content treatment. The distribution by topic and grade level of the nine series is shown in Table 3 below. Note the addition of one new category, Current Economic Problems (e.g. economics and ecology).

TABLE 3
1976 Davis Evaluation of Audiovisual Materials

Distribution of Number of Items Recommended by Topic and Grade Level

		K-3	4-8	9-12
A.	General Nature of Economics	-	1	1
B.	Markets, Prices, and Resource Allocation	-	-	2
C.	Income Determination, Stabilization, and Growth	-	-	2
D.	Role of Government and Economic Institutions	-	-	1
E.	International Economics	-	-	-
F.	Comparative Economics Systems and Economic History	-	-	1
G.	Current Economic Problems (e.g. ecology and economics)	-	-	1

Three comments should be made concerning my review. First, I found nothing available for the early elementary level and only three items (one of which was acceptable) for grades 4-8. Second, many of the items I judged to be appropriate for grades 9-12 did not have statements indicating the appropriate level; a few had statements indicating they were appropriate for either junior or senior high. Third, only three items on the acceptable list had teacher materials that could be considered useful pedagogically.

Evaluation of Games and Simulations

In the past ten years many persons and groups have undertaken the development of role-plays, simulations, simulation/games, and games aimed at enhancing learning. In large part these learning activities have been developed for the social studies classroom. Proponents claim simulation-type activities (1) relate directly to student interest, (2) focus on the real social world and its problems, (3) involve the student directly and actively in the learning process, and (4) enable students to better organize their own experiences (i.e. learn more).

Since the use of simulations and games is relatively new, research results are mixed. However, there are some indications that simulations and games can be effective in learning of facts, concept development, development of sympathetic understanding of social problems, and development of positive attitudes toward subject matter and toward school (Chapman, Davis, and Meier 1974).

Economics was one of the first content areas in which simulation and game development took place. The literature is full of early reports on simulated production situations and market operations. Recently there has been considerable development of more complex simulations and games involving a variety of economic activities (e.g. one simulation involved purchasing factors of production, choosing among production alternatives, marketing, and creating a money system). Also, some attention has been given the development of simulations and games on social problems, many having economic implications.

TABLE 4

Distribution of Economics Simulations and Games by Topic and Grade Level*

		K-3	4-6	7-9	10-12
A.	General Nature of Economics	1	8	3	4
B.	Markets, Prices, and Resource Allocation	1	4	3	15
C.	Income Determination, Stabilization, and Growth	-	-	-	3
D.	Role of Government and Economic Institutions	-	1	1	4
E.	International Economics	-	1	2	7
F.	Comparative Economic Systems and Economic History	-	-	-	-
G.	Current Economic Problems (e.g. ecology and economics)	-	1	1	5
	Column Totals	2	15	10	38
	Percentage Distribution by Grade Level	3.1	23.1	15.4	58.4
	Grand Total				65

*In preparing this table the following sources of information were used: Lewis and Wentworth, *Games and Simulations for Teaching Economics;* Zuckerman and Horn, *The Guide to Simulations/Games for Education and Training;* Stadsklev, *Handbook of Simulation Gaming in Social Education, Social Studies Curriculum Materials Data Book*, Social Science Education Consortium, Inc.

Table 4 shows the distribution by general topic area and grade level of 65 noncomputer simulations and games that purport to focus on economics content. In developing the table there was no attempt to assess the content quality of a game or simulation, and games or simulations dealing with personal finance, the stock market, and business management were not included. The topic categories are the same as those used in evaluating audio-visual materials, including the economic problems category.

Over half the available games have been developed for the senior high school level, grades 10-12. (Seven games, evaluated as appropriate for either junior or senior high, were placed in the senior high category to avoid double counting.) Even if some of the grade 10-12 games are appropriate for grades 7-9, it appears the junior high and middle school levels have not had much attention from game developers. Very few learning simulations and games have been developed for grades 1-3 in economics or any other subject area.

A substantial percentage (35.4 percent) of the available games focus on markets, prices, and resource allocation. Strikingly, there are no games which had a predominant focus on other economic systems or on economic history. This observation is underscored by Zuckerman and Horn:

> *We have noticed that there are no listed simulation games which deal with any economic system other than the now-mythical American free-enterprise system. There is no opportunity to study socialist economics, communist economics, managed economies, let alone the New Industrial State in which we currently reside* (Zuckerman and Horn 1973, p. 161).

Also, it should be noted that most simulations and games in economics are fairly complex and involve knowledge of or learning about many concepts or decision making based on considerable information generated during the game or simulation. What seems to be lacking are simulations that focus on one or two concepts (e.g. utility, trade, opportunity cost). Zuckerman and Horn single out one game to underscore this point:

> Wheat Market *is recommended for its elegance; it deals with a single concept, cost determination through supply/demand forces, and causes players to understand the concept in their bones instead of just fiddling around with words* (Zuckerman and Horn 1973, p. 161).

One last point regarding simulations and games relates to the predominant focus in many economics games on wealth accumulation as a primary goal. Zuckerman and Horn state the criticism quite well.

> *They* [economics simulations and games] *can be criticized in that the accumulation of wealth is considered to be the mono-*

> *maniacial goal of all players . . . . Interested simulation users might wish to explore the consequences to the modelled economic system if the players are offered the opportunity to pursue more enlightened goals. Does the economy depend upon greed and pack-rat success or can people and productivity form a mutually respecting relationship?* (Zuckerman and Horn 1973, p. 161).

Evaluation of Print Materials

Eighteen commercially published sets of curriculum materials (textbooks, paperback series, and supplementary print materials) were reviewed. Five sets were published between 1966 and 1971, two in 1973, seven in 1974, three in 1975, and one in 1976. Twelve sets of the materials were designed for a semester or longer; the other six sets varied in recommended classroom use time from two to nine weeks. Seven of the materials sets reviewed included components other than a textbook (paperback or hardcover) and a simple teaching guide; such components included associated audiovisual materials, simulations or games, a separate rationale statement, and a detailed teacher's guide.

The content criteria I used for review were similar to those used by the JCEE committees. In general I was concerned about the adequacy of treatment of the economics content. Judgment was made on the basis of only the economics content included. For example, if a set of materials focused on markets I considered only whether the materials' treatment of markets was systematic, analytical, accurate, and understandable. Because of the nature of the materials examined, I was less concerned about coverage than either the AEA Textbook Committee or Norman Townshend-Zellner.

Going beyond the earlier materials evaluations (with perhaps the exception of the 1975 elementary textbook committee), a second set of criteria was applied to the pedagogy used by the author or developer. Did the author state a rationale (i.e. the author's position regarding the nature of economics, nature of society, etc.)? Were general and specific instructional objectives stated? Was there evidence that the author developed or adopted an overall instructional theory and specific teaching strategies? Were materials provided for assessing course/unit outcomes? Finally, I assessed whether there was any evidence that the materials had been field-tested.

My main goal in evaluating pedagogy was not to produce a detailed assessment of the quality of the rationale and objectives, the instructional theory and teaching strategies, and evaluation. It was simply to determine if the author/developer had attended to pedagogy. (Some materials analysts would be appalled at merely asking about the existence of pedagogy! Time did not permit the extensive analysis required to publish individual analyses of each materials package.) It should be noted that the general categories I used in evaluation are those found in the Social Science Education Consortium's *Curriculum Materials Analysis System* and those used in the SSEC's *Social Studies Curriculum Materials Data Book* analyses.

Table 5 shows my assessment of the 18 sets of curriculum materials by grade level clusters according to the three assessment categories.

TABLE 5

Davis Assessment of 18 Sets of Economics Curriculum Materials by Grade Level Cluster

Criteria	Grade Level Cluster					
	4 - 6		7 - 9		10 - 12	
	A*	I**	A	I	A	I
Treatment of Economics Content - systematic, analytical, accurate, understandable	4	0	3	0	8	3
Pedagogical Considerations - existence of author rational, instructional objectives, instructional theory and teaching strategies, assessment plans	3	1	2	1	3	8
Evidence of Materials Field Test	2	2	1	2	2	9

*Adequate to meet criteria (A)

**Inadequate to meet criteria (I)

It is not surprising that about two-thirds of the materials sets were developed for the senior high level, grades 10-12. Historically, economics, if it is taught at all, is taught at the senior high level, usually in the twelfth grade. One set of materials for a one-semester course was written for the ninth-grade level. This set could probably not be used below that grade level. The other two sets for the upper elementary level (grades 4-6) is about what might be expected given schools' proclivity for adopting and staying with one elementary social studies series rather than making extensive use of supplementary materials.

In terms of the materials content, I found the treatment of economics to be adequate in 15 of 18 cases, although in many cases there was no attempt to cover the many aspects of the discipline. Those materials that did not measure up had a common problem—too much stress on trivial description. One text purported to teach economics analytically, but it merely described some institutional arrangements in rather vague generalities. Another text concentrated on what I call "what ares" (existing institutions, markets, industries) and "who ares" (bankers, stockbrokers, businesspersons) in a context of promoting free enterprise. And one materials set had some interesting activities that might enable students to do some analysis but had very little substantive economics content for students to use in doing the activities.

Many of the materials referred to the National Task Force Report as a basis for selecting and organizing content. In only two cases was there a conscious attempt by authors to have students examine the assumptions of the U.S. economic system and share their own beliefs and attitudes about the goals of the American economy.

Only eight of 18 sets of materials could pass muster in pedagogy—five of seven for grades 4-9; three of eight for grades 10-12. A common fault was the inadequacy of the teacher materials. Most contained a very short content overview, followed by the answers to the text discussion questions, followed by test questions that usually demanded student recall. These materials seem to me to invite a teaching strategy I call LR^3—lecture, read, recite, regurgitate.

Those materials judged acceptable varied considerably; I suspect some practitioners might find them unacceptable. The text guide for one materials set included a thoughtful rationale, some very specific student learning objectives, and some good exam questions tied to the objectives. However, in this guide there were no teaching suggestions. Two materials sets had explicitly stated rationales for both content selection and choice of instructional theory. There were detailed teachers' guides included with the two sets which stated objectives, detailed student activities, and outlined evaluation plans. One of the two sets included a separate book on the teaching strategies and methods to be employed in the course. Interestingly, there was more consideration of pedagogy in the materials for lower grades than those for the senior high level. Most of the elementary materials are highly activity oriented and require considerable explanation of teaching strategies.

In the past few years state legislatures, as well as many school districts, have mandated that publishers give evidence that curriculum materials have been field-tested before the materials are purchased. It is discomforting, but not surprising, to learn that only five of 18 sets of materials reviewed showed evidence of any field testing. I did not go beyond the publishers' statements that materials were field tested, so I do not know the nature of the field testing.

Evaluation Conclusions

There are seven major conclusions concerning existing materials for teaching precollege economics.

1. The National Task Force Report has had a significant impact on the development of economics materials at the precollege level. The Report has probably been responsible for both the quantity of materials developed in the past ten years and the content organization of the materials. Unfortunately, it is also likely that the Report and the college textbook model have been responsible for the many tomes which exist for teaching economics at the senior high level.
2. Relatively more materials exist for teaching economics at the senior high level than for other levels. This is the case for all types of economics materials.
3. Treatment of economics concepts and generalizations in precollege social studies textbooks at all levels is generally inadequate. Inadequacies include the lack of systematic treatment of economics content, lack of definitions, inaccurate use of content, and authors' failure to take advantage of opportunities to include disciplinary content.

4. With the exception of a few sets of materials, resources for teaching economics at the precollege level are mostly unexciting, unimaginative, and uncreative in teaching/learning configurations. Moreover, there is little evidence to indicate that materials have been thoughtfully field-tested with the client groups for which they were intended.

5. The treatment of the discipline of economics in precollege curriculum materials has improved considerably since the publication of the AEA textbook committee report.

6. Some confusion exists with respect to the appropriate level at which many precollege economics materials are to be used. This is especially true at the junior and senior high school levels.

7. There is a lack of treatment in existing materials of some economics content/problem areas. These include:

   a. analysis of patterns of the reasons for U.S. income distribution.
   b. analysis of assumptions and values underlying the U.S. economic system.
   c. analysis of third world economies vis-à-vis developed economies.
   d. problems related to economic discrimination, especially with regard to women, blacks, and Chicanos.
   e. problems related to economic power of labor unions, large firms, conglomerates, and multinationals.
   f. problems related to the role of regulatory agencies.
   g. analysis of other economic systems, including other ways of thinking about resource allocation (e.g. Buddhist economics).
   h. problems or controversy within the discipline regarding the current policy issues concerning inflation and unemployment.
   i. problems related to the power or lack of power of the individual operating in the economy.

In the past ten or 15 years many economists have become concerned about these areas of interest. These concerns (e.g. maldistribution of income, discrimination, questioning of values underlying the operation of the U.S. economy) are expressed frequently in popular journals and news magazines and are potentially exciting areas of study for precollege students. Their omission may reflect the problem of translating "cutting edge" knowledge into curriculum. Or the omission may reflect an unwillingness on the part of materials developers and/or publishers to address controversial issues at the precollege level. Whatever the reason, the issues are not being addressed in existing precollege economics materials.

RECOMMENDATIONS FOR FUTURE PRECOLLEGE ECONOMICS MATERIALS

Now, let me share with you my idealized image about precollege economics materials five years from now. In my imagination there would exist for economics teachers at all levels of precollege education (and hopefully at the college level too) a variety of materials which are solidly grounded in the discipline; create interesting and exciting learning situations; address sensitive and provocative problems and issues; omit stereotyping and labeling; ask students to examine, probe, and clarify their own values, those of others, and those dominant in our society; and help students develop skills of analysis, interpersonal relations, and action taking.

Let me be more specific by presenting some recommendations in the order of importance I think necessary to begin improving the teaching of precollege economics.

- It is recommended that materials developers, when thinking about new materials, review existing materials for viable "nuggets." The review would include the examination of some of the Developmental Economic Education Project (DEEP) materials that have not had wide circulation, a look at the Kazanjian Foundation Award (now called the International Paper Award) ideas, and a consideration of some ideas from economics curriculum materials that were developed but not published. Given the progress in economics curriculum materials development during the past ten years, it would *not* seem appropriate to recommend that one large national curriculum materials development project be funded. Rather, it may be more appropriate to support a number of models and projects for a reasonable developmental time period. Such projects should have more limited goals than some of the projects of the 1960s; they would build upon existing ideas that have been partially developed. Also, they should take advantage of the extensive developmental expertise now existing.

- In line with the JCEE textbook evaluation committees' finding that economics lacks systematic treatment at all levels of social studies materials, it is recommended that the *Master Curriculum Guide* program, sponsored by the JCEE and chaired by Professor Lee Hansen, receive wide circulation and exposure in the education community. The proposed *Guide* can provide a good first step toward the development of more viable precollege economics curriculum materials. When complete, the *Guide* will include a conceptual framework illustrating economics content and analytical processes and an outline indicating grade placement for economics concepts and generalizations.

  Attention should be paid to the work of Lawrence Senesh and Suzanne Helburn (Helburn 1974; Senesh 1968). Both Helburn and Senesh, who have spent much of their professional lives developing precollege curriculum materials, have designed conceptual structures of the discipline of economics. Their curriculum materials reflect the use of the structures in organizing curriculum content.

  Another important document, *The National Council for the Social Studies Curriculum Guidelines*, published first in 1971, should also be used when considering economics curriculum materials development.

The *Guidelines*, including nine major sections and a checklist for assessing the current status of a curriculum, present a basic rationale for the social studies and focus recommendations on four major kinds of social studies goals: knowledge, abilities, valuing, and social participation ("Social Studies Curriculum Guidelines" 1971, pp. 853-69).

- Economics curriculum materials should be developed for students ages 12-15. This recommendation is based on the following contentions:
  - Students in this age group can learn economics.
  - Students of this age group are concerned about current national/world events.
  - There is a lack of all kinds of curriculum materials specifically designed for this age group.
  - The apparent confusion regarding appropriate use levels of junior and senior high materials demands that more attention be paid to this age group.
  - Given the trend toward organization of middle schools and the accompanying reconsiderations of curriculum, there is an opportunity to make a significant curricular impact at this level.

- It is recommended that new people—economists, educationists, and perhaps other social scientists—with fresh ideas and approaches to curriculum materials development. This is not to say that the "old hands" curriculum materials development. This not to say that the "old hands" should not be included; it is to say that new blood and old may make for a more vital product.

- For elementary school level (students age 6-11), it is recommended that research be undertaken to discover which economic concepts can be learned by this age group with relative efficiency. It is recommended that economics materials appropriate for incorporation in a variety of elementary curriculum plans be designed. One promising practice for the elementary school is the work currently being done by Marilyn Kourilsky. In *Beyond Simulation* it is claimed that students who participate in the mini-society (economy) perform better cognitively and have a better attitude toward school and toward their peers than students who do not participate (Kourilsky 1974).

- Although there are a number of senior high materials which are adequate in content, much improvement of the pedagogical aspects of curriculum materials is needed at this level. These improvements might include:
  - —developing and testing audiovisual materials that can be used flexibly in a variety of learning situations.
  - —developing and testing simulations that are less complex than those extant. The simulations might focus on learning single

concepts, such as utility, exchange, gains from trade, alternative cost.

—developing and testing short curriculum units, perhaps dealing with current economic problems, designed to engage students actively in the learning process.

- Any materials developed should be carefully field-tested under controlled conditions and test results should be made accessible to users and potential users of the materials.

- Regarding content that is not now addressed, it is recommended that developers consider the existing gaps previously identified, especially the gap concerning economic efficacy of individuals. Now is not the time for the discipline to retreat from difficult and sensitive issues or problems.

- In some education and publishing circles the so-called ''dismal science'' is not very popular. New education buzz words such as ''values,'' ''career,'' ''law-related,'' ''consumer,'' and ''basic skills'' stir much more interest. Perhaps we should avoid the term ''economics'' in discussing new materials we develop. However, I don't have a new buzz word to suggest.

REMAINING QUESTIONS

The recommendations, if implemented, would certainly enable us to make some solid improvements in precollege economic education. Yet, there are some remaining questions that puzzle me. I'll list them below, and hope they will help the conference discussion.

1. Should the federal government support curriculum materials development in precollege science education, especially social science education?
2. What is the implication of the mandates to teach ''free enterprise?'' What is really happening with these mandates?
3. It seems there will be competition in the curriculum from those who are pressing for consumer and career education. How do we deal with this problem? Join, resist, co-opt, or ignore them?
4. What are some ways to popularize the teaching of economics? Do we need some ''image makers?''
5. My recent discussions with commercial publishers indicate there is a retrenching to hardback basic texts a la the ''back to basics'' movement. What implications does this have for precollege economics curriculum materials development?

IMAGES OF POTENTIALITY

In this paper I have shared my analysis and evaluation of the status of precollege economics curriculum materials development. I have also taken the risk of offering a number of recommendations—all of which I believe would enable us to make my image of curriculum materials a reality. But there are more issues in economic education than the problem of needed curriculum materials development. I want to dream a bit about some other images of the future. Please join me. The process is called developing images of potentiality (Fox, Lippitt, and Schindler-Rainman 1973). Looking five years into the future of economic education, my images are:

—economics considered by school administrators, supervisors, and teachers as an important, integral part of the curriculum—not an add on, supplement, or subject any outside speaker can handle.

—teachers relishing rather than fearing the teaching of economics.

—state legislators having ceased and desisted from mandating courses on "The American Economy," "The Free Enterprise System," and the like.

—a smooth-working, collaborative communication/dissemination system that fosters good will and puts materials and ideas into the hands of those who will use them.

—teacher educators having demonstrated that preparing teachers to teach the social sciences, including economics, is an important part of the curriculum in teacher education institutions.

—economics professors, as well as other professors in the social sciences, using a new variety of teaching-learning configurations that excite students (some of whom will be teachers), create greater student autonomy, use a wider range of resources, and develop more understanding and concern for the applications of economic and social science knowledge.

—the profession of economics rewarding rather than punishing, praising rather than criticizing, and supporting rather than decrying those who would take the professional risk to engage in development, teacher training, and research in economic education.

Wow, you say. What a dreamer! Perhaps, but we may have the opportunity to make the images a reality.

AUDIOVISUAL MATERIALS ANALYZED BY DAVIS

At Issue: Inflation, Schloat Publishers, Inc.
Darwinism & Economic Life, Multi-Media Productions Inc.
Economic Myths: Economic Realities, Eye Gate Publishers
Economics, Doubleday Multimedia
Economics and the American Dream, Newsweek, Inc.
Economics and the Future, Doubleday Multimedia
Economics and the Global Society, Newsweek, Inc.
Our Productive Resources, Doubleday Multimedia
Taxes! Taxes! Taxes!, Multi-Media Productions Inc.

PRINT MATERIALS ANALYZED BY DAVIS

Basic Economics, The Instructor Publications, Inc.
Beyond Simulation: The Mini-Society Approach To Instruction in Economics and Other Social Sciences, Educational Resource Associates, Inc.
Comparative Economic Systems: An Inquiry Approach, Holt, Rinehart and Winston, Inc.
Economic Life in Modern America, American Book Company
Economic Man, Benefic Press
Economics: An Analytical Approach, New Edition, Ginn and Company
Economics From The Consumer's Perspective, Science Research Associates
Economics in Action, The Macmillan Company
Economics in Society, Addison-Wesley Publishing Company
Economics: The Science of Common Sense, Southwestern Publishing Company
Elementary School Economics I and II, The Allied Education Council
Elements of Economics, The Macmillan Company
Life on Paradise Island, Scott Foresman and Company
Our American Economy, fourth edition, Harcourt, Brace and World, Inc.
Superheroes of Macroeconomics, Follett Publishing Company
The American Economy: Analysis, Issues, Principles, Houghton Mifflin Company
The Market System: Does It Work?, Dow Jones and Company, Inc.
USA: The Economy, McDougal, Littell and Company

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A Response to "Needed Materials in Precollege Economic Education"

James O. Hodges

In this response, the author focuses on Davis' conclusion that the treatment of economics concepts and generalizations in social studies textbooks is generally inadequate. After reviewing various theories concerning the stages of conceptual development and the forces which influence such development, Hodges emphasizes the necessity for examining our understanding of conceptual development and the crucial role of varied educational experiences in building a sufficiently elaborate image of concepts and generalizations to enable individuals to effectively participate in economic decision making. The paper ends with recommendations to materials developers for improving the conceptual development dimension of economic curriculum materials.

While all of Dr. Davis' conclusions and recommendations are noteworthy, I am especially concerned by and in agreement with his conclusion that the treatment of economics concepts and generalizations in social studies textbooks is generally inadequate. Based on my experience as an elementary social studies methods teacher, I applaud his recommendation that research be undertaken to discover which economics concepts can be learned with relative efficiency by elementary school children. This response will extend the discussion of the appropriateness of certain economics concepts by presenting some thoughts about the relationship between levels of conceptual development and "economic understanding." The following questions are intended to identify some of the basic concerns.

1. Is economics replacing history in the mind of elementary and secondary school children as a subject that must be memorized and regurgitated at designated times?

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2. Does the ability to select a response from among four or five possibilities on a multiple choice test demonstrate a depth of understanding about economics that is essential for the achivement of a democratic society?

3. Have all the millions of dollars and hours of effort which have been poured into economic education resulted in a significantly better level of economic understanding among the citizenry than would have been achieved without this expenditure?

The first question brings to mind a recent editorial in *Instructor* magazine in which a mother asked for an explanation of concepts (Thompson 1975). She recounted how, after an initial introduction to concepts at a PTA meeting, she asked her son to tell her a concept he had learned in the "new social studies." The boy gave this some thought and finally responded in a somewhat mechanistic fashion, "A community is a group of people organized around common purposes." I would anticipate that this boy would do well on a test of economic understanding for his grade level. The mother was concerned, as I am, about transfer. She also asked if the new social studies was based on research about concepts children understand. I think this is a question that needs to be raised at this conference.

The substance of the remainder of my response may be "old hat" for most of you, but the conference papers I received before I left Richmond did not lead me to believe that the topic of conceptual development would be specifically discussed during this conference. This would be unfortunate since one of our major concerns is that students learn certain concepts and generalizations from the discipline of economics and be able to use them as analytical tools to understand and function in the social environment. What I perceive as "needed research" in this area may already exist; however, many of the materials available for teaching economics to elementary children do not reflect sufficient utilization of some currently popular theories about conceptual development.

STAGES OF CONCEPTUAL DEVELOPMENT

It seems desirable to consider two different kinds of conceptual development models—models depicting stages of conceptual development and models describing forces which influence conceptual development. For the former Herbert Klausmeier has developed a meaningful way of thinking about concepts and conceptual development. He has suggested that a concept is both a mental construct held by the individual and an identifiable public entity (Klausmeier 1975). Individuals develop mental constructs or images of a concept as a result of their experiences in the social and physical environment, including encounters inside the school classroom. The public entity of a concept is the organized information corresponding to the word. It is very close to the meaning that would appear in a dictionary. I find it useful to think of the public entity as that part of a concept which enables one individual in a particular language group to communicate effectively with another individual in the same group by using the word symbol for the concept. On the other hand, the mental image is the product of an ongoing synthesizing of the individual's experiences related to a particular concept.

The *Taba Program in Social Science* makes frequent use of the ideas of concept attainment and concept development (Tanabe and Durkin 1973). Concept attainment is the process involved in acquiring the common word meanings of the concept. I take this to mean acquiring the public entity as described by Klausmeier. Concept development is the process of enlarging the dimensions of the concept. This can be thought of as adding to or altering the mental image or, in education jargon, reorganizing the cognitive structure. These distinctions would seem important to economics educators who are concerned with the level of understanding of economics concepts and generalizations held by the collective citizenry.

Some additional insight into levels of understanding is provided by Klausmeier as he describes levels of concept attainment. He has identified four levels: (1) the *concrete* level, which is inferred "when an individual recognizes an object that has been encountered on a prior occasion"; (2) the *identity* level, which is inferred "when the individual recognizes an object as the same one previously encountered when the object is observed from a different physical perspective or sensed in a different modality"; (3) the *classificatory* level, which is inferred "when the individual responds to at least two different examples of the same class of objects, events, or actions as equivalent"; and (4) the *formal* level, which is inferred "when the individual can give the name of the concept, can define the concept in terms of its defining attributes, and can differentiate between examples and nonexamples in terms of the defining attributes" (Klausmeier 1975, pp. 45-118).

Klausmeier further states, "Concepts learned at the classificatory and formal levels can be used in generalizing to new instances, cognizing supraordinate-subordinate relations, cognizing cause-and-effect and other relations among concepts, and in solving problems" (Klausmeier 1975, p. 52). It is the processes that occur at the latter two levels that seem important in trying to determine the level of economic understanding.

With this perspective, it seems appropriate to think about both concept attainment and concept development and to envision concept attainment as a small and generally early step in concept development. Concept attainment or acquiring the public entity is essential for economic understanding; however, developing an elaborate mental construct of a concept may be what we have in mind when we talk about the need for economic literacy. If we accept the challenge of developing mental images in addition to transmitting public entities (definitions), then thought must be given to and research conducted on the most effective experiences children have in their social world and in the formal educational process to accomplish this end.

FORCES INFLUENCING CONCEPTUAL DEVELOPMENT

Some insight into forces which influence the development of mental images may be gained by considering a social psychological model. Donald Weatherley has described how social interaction with the family, school, peer groups, work groups, and exposure to mass media influence an individual's beliefs, attitudes, and values about himself and his world (Weatherley 1973). Drawing heavily on the work of Weatherley and Lawrence Senesh, I have provided elsewhere a similar interpretation of the socialization process (Hodges 1973). There is an abundance of literature related to this process.

The essence of those discussions as it relates to this point is that the mental images or concepts acquired by each individual are partially the result of the many socializing influences which are encountered by existing in a social world. Since the social world includes the economic world, many of these experiences contribute to the development of both economic conceptions and misconceptions. Stated another way, through his/her experiences in the real world, an individual's cognitive structure is continually added to, modified, and reorganized. This applies to both children and adults.

Expanding on Bruner's hypothesis that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development" (Bruner 1960, p. 33), it is my contention that children, as a part of the process of interacting in an economic world, begin to develop mental images of economic concepts almost from birth. An image begins with an initial experience, and each additional experience which is associated with a previous one becomes part of an expanded image. A good deal of conceptual development may be attributed to maturation in an experience-rich social world.

Concepts will develop without economic education programs; however, misconceptions about economics may be proportionately greater. By the same token, much of the learning we attribute to classroom instruction may actually be the result of a child's experiences in the real world. It may be that we are not doing much more than providing concocted categories, or concepts, with which a child can group his experiences and share with us a part of what he has learned in the real world—a necessary function of education.

This notion may help to explain some of the research findings related to acquisition of knowledge about economics. Older children have usually had an opportunity to have more economics-related experiences which can be brought to school learning experiences than younger children. Children from more affluent socioeconomic environments have probably had more exposure to and interaction in encounters contributing to the expansion of economics concepts and generalizations. Children who demonstrate high academic ability may have had more vicarious experiences which contribute to the development of economics concepts than children of lower academic ability. Children who read a great deal may reasonably be expected to have more economics related experiences than nonreaders. With every example, there will be exceptions. In addition, we should not overlook the role of the learner in his encounters with the environment, particularly the extent to which the learner is physically and/or mentally active in the encounter. Learning by doing would tend to generate an image that is quite different from one acquired while listening to a lecture.

If we accept the above line of reasoning, then one task of economics educators would be to attempt a more realistic appraisal or evaluation of each child's level of conceptualization. This is a large order. The alternative is to continue as we are. Under present conditions it is quite likely that we spend considerable time and effort attempting to develop images which children already have. Even more disturbing is the likelihood that we often try to teach concepts to children who have no previous related experiences which would enable them to build the expected images. Such efforts would surely tend to discourage and alienate the child who is deficient in the necessary previous experiences.

The demand for individualizing instruction seems to be increasing, but the difficulties of providing for individualized learning seem almost prohibitive. Nevertheless, greater attention must be given to the uniqueness of each individual. This includes recognizing that each child enters the classroom with a cognitive structure created from hundreds of experiences, with many of these experiences being similar to experiences of his classmates but with many more uniquely his or hers. In today's typical elementary schools, it is also very likely that within a single classroom there will be several groups of children with vastly different experiences which are the result of being a part of different socioeconomic, cultural, and ethnic communities. The term "community" as used here refers to the various geographic areas served by the school. Each community will provide opportunities for different kinds of learning experiences. Because the opportunities for developing economic concepts will differ in each community, children from one community will have some shared images that are different from images held by children from other communities. In planning to individualize learning, the teacher must consider these many differences. The curriculum developer must do much more toward making available to teachers materials designed to expand the mental images of each child. It would be impossible to provide a different curriculum for each child; however, a variety of activities which provide options for individual students or groups of students can be created.

PROVIDING EDUCATIONAL EXPERIENCES

If we direct our efforts toward creating and disseminating activities designed to facilitate the development of elaborate and sophisticated mental images of economic concepts and generalizations, then we may want to consider two models I believe are useful. Edgar Dale uses a pictorial device which he calls the "Cone of Experience" to show the possible variety of learning experiences and the progression of learning experiences from direct experiences where the student learns primarily by doing, to highly abstract learning experiences where the role of the student is primarily one of unlocking symbolization. Dale further groups these experiences into three levels—the enactive, the iconic, and the symbolic—which are similar to the three modes of learning suggested by Bruner (Dale 1969).

Another useful way of considering learning activities has been presented by Jack Fraenkel (1973). He identified types of learning activities as those involving behaviors (example: describing), products (example: a map) and experiences (example: visiting a factory). He further identifies certain functions served by learning activities: the intake of information (example: reading pamphlets), the organization of information (example: summarizing), demonstrating what has been learned (example: reporting), and creating or producing an original product (example: writing an essay).

I find these models useful in suggesting ways of thinking about educational experiences. At the same time I recognize that those who have worked diligently in developing economics materials have generally demonstrated the need for providing a variety of educational experiences. What I hope to bring before this conference is the necessity for examining our understanding of conceptual development and the crucial role of varied educational experiences in building a sufficiently elaborate image of concepts and generalizations to enable individuals to effectively participate in economic decision making. What I am arguing against is the kind of approach that sometimes appears in materials for elementary children where a word is defined and a few examples are provided, then an assumption is made that a child has acquired a concept if he can respond in the appropriate way on a multiple-choice test.

SOME THOUGHTS ON TESTING FOR ECONOMIC UNDERSTANDING

At this time, I would like to again raise the question about the level of learning that is necessary to do well on a test of economic understanding. It may be that most materials developed to teach economics do a fair job of transmitting public entities of concepts but are not sufficiently successful in expanding mental images of concepts. Do economic educators really know if the ability to select the appropriate responses on a multiple choice test insures that the student has achieved the desired level of economic competence?

I suggest that it is misleading to talk about teaching a concept or learning a concept as though it is a goal to be achieved and then accepted as complete. Concept attainment may be quickly accomplished by presenting a child with a definition and examples in an appropriate sequence; however, expanding the mental image of a concept is a never-ending process. The question is how much is enough to know about scarcity, or interdependence, or resource allocation. Research is needed to help us know how elaborate the images must be to function efficiently and effectively in our economic world.

RECOMMENDATIONS

Coming back to the topic of needed curriculum materials development and considering the perspectives presented in this response, the following recommendations are offered.

- Research should be undertaken to determine the specific materials that are actually being used to teach economic concepts and generalizations in the elementary schools.
- Materials should be designed which will supplement existing materials, including textbook series, to provide a variety of experiences that are purposely planned to develop elaborate images of economics concepts and generalizations.
- Each activity selected for the purpose of increasing economic understanding should be critically evaluated in terms of its potential for expanding the conceptual image of the learner, and an explanation should be provided as to how the activity will accomplish this purpose.
- A guide should be prepared for teachers which would explain conceptual development and provide examples of strategies that aid in both concept attainment and concept development. The role of both processes in developing economic understanding should be clarified.
- Explorations into approaches which could provide image-building experiences at very early stages in a child's cognitive development should be undertaken. A special effort should be made to suggest ways of providing enrichment experiences for children in communities having limited opportunities for developing appropriate economics concepts and generalizations.
- Conceptual development should not be considered strictly in terms of cognitive growth, but attention should be directed simultaneously toward the affective component. Activities should be selected not only for their effectiveness in developing more elaborate mental images but also for their effectiveness in developing positive attitudes toward participation in economic decision making.
- Economic concepts that are appropriate for inclusion in the curriculum at various grade levels should be identified, attributes or defining characteristics of each concept should be specified, and a number of appropriate examples of each concept should be provided.

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A Response to "Needed Materials in Precollege Economic Education"

Suzanne W. Helburn

While concurring with most of Davis' conclusions and recommendations, this respondent suggests that Davis' own analysis of economic curriculum materials suffers from some of the same shortcomings as earlier analysis efforts. To remedy these problems, Helburn recommends the use of analysis criteria such as that found in the *Curriculum Materials Analysis System*. In the second part of her response the respondent reviews findings and experiences of materials developers of the 1960s and 70s and emphasizes the importance of drawing on their work in new development efforts. Helburn concludes with the recommendation that any funding committed to new materials development should include provisions for the full and effective installation of the materials into the classroom.

The first part of these comments are reactions to the Davis paper, mainly to extend his discussion of procedures for evaluating curriculum materials. I will suggest an alternative evaluation procedure which is particularly useful in analyzing teaching systems. The second part of this paper summarizes accomplishments to date in economics materials development, accomplishments which represent a major breakthrough in teaching economics to students and teachers and in preparing teachers to teach economics. Although these curriculum packages have flaws and do not satisfy every need, they should be the basis for any new curriculum development efforts. The final section of the paper offers recommendations about needed research and development. I believe that our efforts at economic education reform are fragmented because of the tendency to treat research, materials development, evaluation, teacher

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training, and diffusion as separate and unrelated realms. In fact, curriculum reform necessarily requires a holistic approach which includes all of these components.

REACTIONS TO THE DAVIS PAPER

I agree with most of Davis' conclusions and recommendations. His emphasis on the need for curriculum work at the junior high school level is correct, in my opinion. In addition, it seems important to provide materials for ethnic minorities and other relatively disadvantaged groups, and these materials should truly reflect economic conditions and opportunities for these groups.

I also share Davis' disappointment with the evaluations of materials in most of the studies he summarizes and agree with him that generally, these reviews focus unduly on content. This is because the criteria were originally designed to analyze textbooks rather than teaching systems or curriculum packages. The one dimensional criteria renders them inadequate to the task of analyzing the new curriculum materials. The use of these criteria, focusing as they do on only the content dimension, actually hides the innovative features of the new materials. They cannot describe, let alone evaluate, the other dimensions which have been designed into the programs. The evaluations do give us information about content gaps in grade level coverage and content coverage, but they do not evaluate the materials in terms of more complex questions of curriculum development; therefore, they do not permit a complete evaluation of the state of the art.

The Davis evaluation of recent products suffers from some of the same problems as the earlier studies. It over aggregates the data, giving only gross information about the materials. We have no description of the characteristics of the materials, no basis for making conclusions about the relative merit of the materials, no way to identify the unique characteristics of curricular packages which should be widely imitated.

It is significant that we have not been provided with a complete bibliography of student and teacher materials in economic education. Furthermore, in the research bibliographies provided for this conference there is very little reference to the action research and formative evaluation accomplished on curriculum projects which created these innovative approaches. Are we about to reinvent the wheel? Or, worse still, will we reenter the dark ages of dependence on textbook approaches to teaching economics in the public schools just when these exciting approaches to economics education have been discovered?

It is important to assess the state of the art because any new efforts in curriculum and materials development should build on what has gone before. Furthermore, projects should be directed by people who will make use of existing knowledge.

THE CMAS APPROACH TO CURRICULUM ANALYSIS

An appropriate analysis criteria for teaching/learning materials created in the 1970s should include a means of evaluating all major categories of curriculum design:

1. rationale and objectives
2. antecedent conditions (nature of teachers, students, classrooms, schools, communities)
3. content, both affective and cognitive
4. underlying instructional and learning theories
5. basic teaching strategy and methods
6. procedures for evaluating student progress
7. incentives (motivation system) for student learning
8. teacher training
9. program evaluation

The Social Science Education Consortium (SSEC) has created and does use such an instrument. It is the Curriculum Materials Analysis System, CMAS (Morrissett et al. 1971). The system was designed to analyze the national curriculum projects of the 1960s. The Social Science Education Consortium's *Social Studies Curriculum Materials Data Book* gives product descriptions of currently available materials based on a shortened version of the CMAS (SSEC 1971).

WHAT WE HAVE LEARNED: A CURRICULUM DEVELOPER'S PERSPECTIVE

The next steps in economic education research and development should be based on accomplishments to date. This requires that the economic education movement consciously and wholeheartedly join the general reform movement in social studies education. The curriculum materials in social studies created in the 1960s and 1970s are more than merely materials. They represent the progress to date in bringing John Dewey's and Jean Piaget's prescriptions for educational reform to fruition in social studies.

In the earlier part of this century, Dewey applied the scientific method to educational practice and invented progressive education. This is education based on experience and on the progressive development of what is experienced by the learner into a fuller, richer, and more organized form of knowledge (Dewey 1938).

Piaget, in a recent monograph for the United Nations, summarizes the purpose of his life work and what he considers to be the proper goals of education. Education should be directed "to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms." This requires the development of a substitute for traditional schooling which is fundamentally action oriented, an education which will build in the learner "a questionning mind and a dynamic moral conscience" (Piaget 1972, pp. 91-92).

The work of bringing to fruition John Dewey's and Jean Piaget's dreams has been going on for 60 years. The social science curriculum projects of the 1960s have helped to make the dream concrete. They created the necessary structures and materials which permit us to practice progressive education. This is a major accomplishment, and we have really only just begun! What have we accomplished?

First, what was attempted and to a large extent created are curriculum programs which are integrated wholes. These curriculum packages require:

1. carefully delineated learning objectives, including objectives to raise students' cognitive, moral, emotional, and social levels of functioning;
2. content choices based on powerful conceptual and analytical structures of knowledge and on a sampling of facts, cases, and events which illustrate parts of the structure and expand student experience;
3. appropriate sequencing and spiraling of appropriate size learning activities;
4. rotation of learning activities into learnable steps to permit assimilation and accommodation to new knowledge;
5. design of effective learning experiences which require active student involvement and allow them to acquire and practice necessary skills, to use and extend their knowledge, to clarify and build their system of beliefs;
6. design of powerful learning experiences—activities which motivate students to learn, which are interesting and captivating because they work simultaneously on the achievement of multiple objectives;
7. the use of systematic and continual feedback to students on their learning progress;
8. the development of the materials for all this; and
9. the training and inspiring of teachers to change their behavior and their functions in the classroom—to move away from lecturing and controlling toward managing, diagnosing, adapting, inventing, inspiring, and caring.

It is not easy to construct such a system. The Taba and Senesh materials were 20-year projects. Dewey himself recognized the difficulty of designing materials for progressive education and predicted that this would be the major stumbling block (Dewey 1938). But this is work worthy of the greatest minds. Nicholas Helburn describes the process and its effect on the professional geographers who gave their time to the work in the High School Geography Project:

> *To dream and sort and discuss and reject and modify and write and rewrite and try and watch and recast and rewrite and redream*

> *and resort, and discuss again . . . takes months, not weeks. Another way of saying it might be that we were taking academic geographers and asking them to learn about high school social studies and the best of the science and art of pedagogy and then combine their new learning with a few important ideas and skills from their specialty in geography. It takes time to learn and mix the skills, to conceive, grow and bring forth imaginative activities for the classroom* (Helburn 1970, p. 35).

Second, and related to the first point, developing a complex system not only takes time, it is a systems design problem requiring what educators call action research—continual refinement of objectives, materials, strategies, evaluation instruments as researchers learn from trial use of materials more about what students can and want to learn. These are legitimate research procedures, requiring the most objective observation possible within the budget constraints of the projects. But usually, they are not experimental designs.

Third, these curricular packages, once completed, are part of a bigger system. Their impact depends on implementation—teacher training at all levels, marketing of the products, and installation into the classroom.

Fourth, the curriculum packages are also teacher training packages. Over a period of ten years since 1966 we have learned how to introduce these new approaches to teachers. We teach the teachers using the materials. Through demonstration followed by debriefing of exemplary activities, the teachers gradually learn the nature of the curriculum and the specifics of teaching methods. Then they teach lessons and debrief this experience. It is my experience in NSF-sponsored summer workshops that these methods do inspire teachers. Usually it is up to the curriculum materials to do the rest. We count on the student and teacher materials and the experience of the activities to increase the teacher's knowledge of the content and of the teaching methods. This should work. After all, it is not so different from our university experience. We all know that the best way to learn a new field is to get the right books and then teach a course on the subject.

RECOMMENDATIONS

Curriculum design, research, evaluation, teacher training, diffusion—are parts of a whole system. In economics jargon, they are stages of production. What we need in the field is more vertical integration, hopefully without its monopolistic implications. For the plain fact is this: the recent curriculum reforms have not had much impact. They have not been successfully installed in many schools. Is this because they are bad? useless? We don't know. Most of them have never been evaluated in a summative evaluation after the materials have been published. Publishers cannot afford the dissemination efforts of teacher awareness, orientation, and training that these programs require. The materials are not visible to the potential user, the teachers and administrators who adopt textbooks. Finally, the markets for these products are relatively small except at the elementary level, and they are fragments here and there. It is easier for a sales force to sell elementary math, especially if the publisher has been successfully selling elementary math for years.

This leads to my final recommendation. Once a funding agency commits itself to curriculum design it ought to commit itself to the whole process: summative evaluation, work with publishers, teacher training, and so on. I am not trying to say that all funds should go to one or two big projects. I am not sure it is worth it. Economic educators should follow their own interests, but we would be more cost effective if we could find ways to work together on the best of what we have created and to go on from there.

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Current and Future Needs for Teacher Training in Economic Education

James A. Mackey,
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and
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In the first section of this paper, the authors focus on past and current trends in the economic education training of precollege teachers. They conclude that while economics education has come of age in the 1970s, a lack of coordinated efforts between economists and educators as well as wide variation in certification requirements contribute to inadequate training of many elementary and secondary teachers who teach economics. The paper's second section reviews research on teacher training in economics education and relevant literature on general teacher training. Demonstrated conclusions about effective components of teacher training programs, such as the importance of feedback and trained student teacher supervisors, are discussed. The authors conclude the paper with 13 recommendations for improving teacher training in economic education; recommendations emphasize research needs as well as preservice and inservice training program needs.

In a 1966 report, the Advisory Seminar to the California State Department of Education reached the following conclusion:

> *If we are to achieve success in economic education throughout the United States, we must now focus on the economics preparation of future teachers in our schools. Local school systems and state departments of education, no matter how well motivated, and how well supplied with texts, curriculum materials, and consulting economists, simply cannot move forward in economic education without a substantially increased supply of teachers adequately prepared in economics through both pre-service and inservice*

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training in the colleges (Advisory Seminar to the California State Department of Education 1966, p. 1).

Ten years have passed since the Advisory Seminar suggested that teacher preparation be the focus of economic education. In the decade since that influential report was issued, economic education has moved ahead in a variety of areas related to teacher education. Many new materials and curriculum programs have been developed and implemented in the schools; many thousands of teachers have been trained and retrained. What is the status of these efforts as it relates to current and future needs for teacher training in economic education today? Are the California guidelines still relevant in 1976? Where are the needed areas for renewed focus and how might we best proceed? This paper addresses these questions by examining past and current teacher training in economic education, reviewing and synthesizing relevant research literature in teacher education, and proposing a set of recommendations for future teacher training in economic education.

PAST AND CURRENT TEACHER TRAINING IN ECONOMIC EDUCATION

Practicing teachers' conception of economics and how it should be taught is based on their academic course work in the social sciences and the type of pedagogical training they receive. In fact, the current status of economic education in the schools can be largely attributed to historical trends in these two areas of teacher education.

Historical Developments in Social Studies and Economic Education

The teaching of economics in the public school has been a part of both social studies curriculum and teacher training since the 1916 Committee on Social Studies recommended its inclusion in ninth-grade curricula. However, only after the formation of the Joint Council on Economic Education in 1949 did economic education make significant progress in becoming an integral part of social studies curriculum and teacher training programs. Over the past 25 years, the Joint Council on Economic Education, in collaboration with other national professional groups and its network of state councils and university centers, has made notable gains in the acceptance and improvement of economics teaching in elementary and secondary schools across the nation.

The most recent curricular and philosophical trend in social studies to dramatically impact teacher education in economics was the "new social studies" movement which emerged in the early 1960s. Stimulated by large federal grants, teams of scholars from the disciplines, colleges of education, and public schools were formed to develop classroom materials that would reflect current thinking in the social sciences and education. The development process was massive in scope and its effects are still a dominant influence in social studies curriculum design and teacher training.

The Process of Education by Jerome Bruner was the catalyst for the movement. By learning the basic structure of a discipline, Bruner and his supporters believed that the learner could learn how things related and, as a consequence, make more sense out of the world. He proposed to reform curriculum by allowing the best minds in a discipline to develop materials for use by the beginning student, thus bringing "the fruits of scholarship and wisdom to the student" (Bruner 1962, p. 19). Bruner's philosophy, coupled with a strong desire by other educators, academics, and the general public to improve American education, ushered in an era of curriculum reform unprecedented in American educational history.

Economic education was very much a part of this new social studies movement. Utilizing the expertise of the Joint Council on Economic Education and professors of economics, a national task force was formed to answer the question, What economic concepts should be taught in the schools? Drawing on the Council's work, a major report, *Economic Education in the Schools* (1961), was written by the National Task Force on Economic Education, and several research studies were begun to determine how much economics both students and teachers knew.

From this effort in the early 1960s, two calls for reform emerged. First, a call went forth for the development of new curriculum materials for teaching economics in the new social studies. These materials were to focus on the structure of the discipline and its ways of inquiry and were to be integrative with the total curriculum. Second, guidelines for teacher training were solicited. Both recommendations were offered with the belief that better economic understanding would be achieved by students if better materials and better trained teachers were available.

In addition to the large federal thrust in both materials development and inservice teacher training during the 1960s, the Joint Council inaugurated and significantly expanded its national Developmental Economic Education Program (DEEP). From all these activities in social studies and economic education many new curricula adopted economics, many new materials for teaching economics were developed, and many thousands of inservice social studies teachers were trained (and retrained) in both the understanding of economics and the use of the new materials. Significant progress and accomplishments were attained (Becker et al. 1975; Grobman 1970; Maher 1969; Psychological Corporation 1970).

It is equally important, however, to recognize what failed to emerge during the 1960s and early 1970s. Although guidelines for teacher training were solicited and thousands of teachers were exposed to inservice programs in economic education, few exemplary syllabi from these programs currently exist and little evaluation of such training has been undertaken (Dawson 1975b; Lewis and Orvis 1971). Only a few recent studies have systematically addressed the classroom effectiveness of selected inservice teacher training programs in economic education (Bach and Saunders 1965; Becker et al. 1975; Girgis and MacDowell 1972-73; Dawson and Davison 1973; Highsmith 1974; Luker et al. 1974; Maher 1969; Nappi 1971; O'Toole and Coates 1974;

Saunders 1964). No systematic research and minimal effort have been directed to the preservice (undergraduate) training of teachers in economic education.

College Preparation for Teaching Economics

A significant exception to the general preservice training effort in the 1960s was the report and set of recommendations by the Advisory Seminar to the California State Department of Education (1966) concerning preservice preparation for teaching economics.

The overall guidelines of the report can be summarized in the following three categories of recommendations:

1. For all teachers, K-12, a basic three-semester-hour course in economics stressing economic reasoning, basic concepts and models, and applications to problem and policy situations; also a "classroom laboratory" course in teaching economics.
2. For all social studies teachers in grades 7-12, a three-course sequence in economics with nine semester hours total.

a.	The basic course with laboratory	3 semester hours
b.	Contrasting Economic Systems	3 semester hours
c.	An elective, preferably an advanced problms course	3 semester hours

3. For teachers of grade 12, seven one-semester economics courses, a minor in economics with 21 semester hours total.

a.	The basic course with laboratory	3 semester hours
b.	Contrasting Economic Systems	3 semester hours
e.	Quantitative Methods	3 semester hours
f.	Two electives in economic problems	6 semester hours

The California recommendations were unique in several respects. First, the report suggested that *all* K-12 teachers take a basic economics course and a practical laboratory. Second, teachers in grades 7-12 were also to take a three-course sequence in economics. Third, the report recommended that teachers at the twelfth-grade level who wanted to teach an economics course be required to have at least a minor in economics. The document further advised that economics professors become more involved in training. Since 1966, the California proposals have served as benchmarks for training teachers in economic education, and we strongly recommend their renewed review by both economic and social studies educators.

Certification Programs in Economics

How well are most teacher training programs meeting the California Advisory Seminar recommendations today? A brief review of typical training and certification processes across the nation provides information. Individuals seeking to teach economics in the public schools must first meet graduation requirements established by a college or university and then certification requirements of a particular state.

To be certified to teach economics, an individual generally follows one of two routes. If attending a small public institution or private college, a person typically selects an academic major in economics and completes all the requirements for the major. In addition, the candidate completes course work in education which usually includes one course in basic pedagogical skills, usually a general methods course for all teacher training majors.

The culmination of education requirements is a student teaching experience. A preservice teacher teaches in his or her area of expertise under the supervision of a cooperating teacher and a college supervisor. College supervisors seldom have backgrounds in economics or social studies. Only in rare instances do persons interested in teaching economics receive special training in teaching economics.

The training of a precollege economics teacher in a larger institution differs only slightly from that in a smaller institution. Usually, a student does not complete an academic major in economics but instead enters a school of education and becomes a social studies major. As a social studies major, the student may concentrate on economics but will also take additional course work in the other social sciences. Specific courses in the teaching of social studies are typically included in the education course work, but few institutions offer an undergraduate course in the teaching of economics. As in the smaller institutions, the final component of the undergraduate's training is the student teaching experience. While the student teacher from a larger institution is more likely to have a college supervisor trained in the teaching of social studies, the supervisor's area of expertise may not be economics.

Regardless of the type of undergraduate training, the bulk of a student's course work—usually two-thirds to three-fourths—is taken in academic departments. In the case of economics, only slight differences exist between the course work of the liberal arts major and that of the education major. In this respect, both the liberal arts professor and the education professor share in a teacher's preparation.

A survey of 1,300 colleges and universities recently conducted by George Dawson and the Joint Council (Dawson 1975b) provides more specific data on the training of teachers in economics. The survey found that 73 percent of all secondary school social studies majors and 32 percent of all elementary education majors must take at least one course in economics. It also found that 73 percent of the reporting schools claimed to offer "some sort of instruction" in methods for teaching economics at the precollege level. However, this instruction was nearly always incorporated in a more general methods course; few methods courses devoted exclusively or even heavily the teaching of economics were reported.

In another recent survey, Weidenaar (1975) found that over two-thirds of all college and university social studies educators have had fewer than two courses in college-level economics; over one-fifth have never had a course in economics. Among respondents having taken a course in economics, over half took the course more than 12 years ago.

The Weidenaar study also showed that the vast majority of college and university social studies educators had never, either as a student or as a professor, attended any special program to increase their understanding of economics. Few social studies educators had ever cooperated with an economist in a joint teaching or research project. It is encouraging to note, however, that a full 40 percent of the respondents felt there is a "great need" for further economics education for college and university social studies educators and another 53 percent felt that "some need" exists. Almost 90 percent expressed interest in attending a program designed to increase their understanding of economics (Weidenaar 1975).

Upon graduating from a particular institution with a teaching degree or credits to meet certification, an individual may apply for certification from a state department of education. This procedure is usually *pro forma*, and the individual is certified for a psecific period of time to teach social studies at the secondary level or to teach at the elementary level. Only nominal certification requirements in economics are typically mandated by most state departments of education. In 1972, 39 states required no courses in economics for high school social studies teachers and 46 states required no economics for elementary teachers (Dawson 1972).

Unfortunately, the above data suggest that many of our training programs are not yet meeting even the minimal recommendations of the California report. Despite increasing progress in economic education, insufficient teacher preparation in economics is still a critical bottleneck. Recent surveys have found that only about half the nation's 60,000 social studies teachers have ever undertaken formal study of economics and that no more than 50 percent of all prospective teachers take a course in economics; if they do, it is only one such course (Dawson 1972). Apparently, the California guidelines have had limited impact in the past ten years.

Several important conclusions may be drawn from our brief review of past developments and current efforts in the training of teachers in economic education. First, and most important, economic education in the 1970s has come of age. Economists and educators have together sought to clarify the basic concepts of economics and to develop materials that are academically and pedagogically sound. Major new curricula and materials have been developed. Thousands of inservice teachers have been trained in economics and in the use of these new curricula and materials. However, observation of teacher training in economic education today indicates that much remains to be accomplished.

> Implementation of the California guidelines for college preparation for teaching economics has been limited at best. If the California guidelines are not realistic goals, alternative guidelines are not available.
>
> Few truly cooperative and coordinated efforts between educators and

economists in preparing undergraduates to teach precollege economics currently exist at most colleges and universities.

Certification requirements for economics vary widely from state to state, but requirements for certification are generally low.

Many newly certified social studies and elementary teachers (and teacher trainers) are still not adequately prepared in academic economics courses.

Most pedagogical training economics teachers receive at the undergraduate level is focused on the general teaching act, not on specific strategies for the teaching of economics.

Most teacher trainees (and trainers) still do not receive adequate training in the practical applications of basic economic concepts.

Economists and educators have yet to develop and share exemplary course syllabi directed to the pedagogical training of precollege teachers in economic education.

IMPROVING THE EFFECTIVENESS OF TEACHER TRAINING IN ECONOMIC EDUCATION

James Boswell remembers Samuel Johnson saying that he could recite word-for-word an entire chapter of the book, *The Natural History of Ireland*. The chapter was entitled "Concerning Snakes." Given encouragement, Johnson recited, "There are no snakes to be found in the whole of Ireland."

Until recently it was possible to explore very nearly the whole of the literature on teacher education and, like Ireland, not find much. Little more than discordant bits of wisdom, maxims, and exhortations of the "win one for the Gipper variety" were available. Specific teacher training efforts in economic education have focused on teaching teachers more economics. Little attention has been directed to strategies for improving the pedagogy of teacher training in economic education. For example, there is not a single study of the effectiveness of teacher training and its various pedagogy in economic education at the preservice level (Dawson 1975b; Lewis and Orvis 1971). Thus, it is imperative that we examine the general literature on teacher education to learn how to better prepare teachers in economic education.

Research Conclusions on Training Teachers in Economics Education

The task of all teacher education is to develop programs which prepare teachers to facilitate maximum student learning. According to Good, Biddle, and Brophy, students learn best when the teacher displays the following characteristics:

> *clarity; variability in teaching methods, curricula and/or media, enthusiasm; task-oriented and/or business-like behavior; indirect-*

> *ness (questioning rather than lecturing, frequent use of praise and frequent pupil-to-pupil interaction); student opportunity to learn the material; teacher use of structuring comments; and multiple levels of questions or cognitive discourse (as opposed to heavy concentration at one level of discourse)* (Good, Biddle, and Brophy 1975, p. 58).

Teacher education programs should focus on teaching these effective "moves" to future teachers.

During the 1960s, three studies reviewing the strengths and weaknesses of teacher education programs (Collier 1964; Wilk, Edson, and Wu 1967; Denemark and Macdonald 1967) all found a scarcity of available research. These reviewers attributed the desultory results to several factors: the existence of only a few experimental studies, a lack of general theoretical perspectives, and most importantly, the staggering complexity of teaching. Pack and Tucker illustrate the latter point with this statement.

> *Teacher education involves many factors which interact simultaneously: the pupils' aptitudes, interest, readiness and attitudes toward learning; their parents' and their subcultures' attitudes toward schooling; the administrative policies and the interpersonal organization of the schools; similar characteristics of the teacher-training institutions; the individual, personal characteristics of the teachers; these, and even more factors are constantly at work in the real settings we too briefly sum up with the simple sounding phrase, "teacher education"* (Peck and Tucker 1973, p. 942).

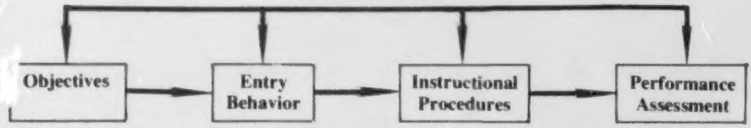
While the research documenting the impact of teacher education programs is still far from definitive, reviews do show that the direction of research since 1965 is encouraging and positive findings are beginning to emerge. Although much of the territory of teacher education is still unexplored, at least researchers have begun to develop reliable maps.

The remainder of this section will briefly summarize the research conclusions from studies which have attempted to assess the effectiveness of teacher education programs. These are drawn from those areas that seem most germane to the improvement of teacher training programs in economic education. They have been condensed primarily from the three recent reviews of the teacher education literature (Peck and Tucker 1973; Dunkin and Biddle 1974; Good, Biddle, and Brophy 1975). The Peck and Tucker review is the best available review of such teacher education research and was the most important source for this section.

Teachers tend to be more effective when teacher behaviors are precisely stated in training exercises.

This conclusion results from research done on programs using an "instructional systems" approach, an approach which recognizes the complexity of teaching and attempts to break the act into component parts. Each is viewed as a skill and taught additively in the teacher education program as a precisely defined teaching competency. Most programs using instructional systems employ some variation of the following goal-centered model.

Feedback Model



Instructional systems models have at least four basic underlining assumptions. Advocates maintain that teaching skills can be identified, described, taught, and measured (Patrick 1973).

Research on this strategy has produced generally positive results. It shows that student teachers who are given clearly defined objectives in instruction systems training are able to establish a learning set in their pupils that leads to greater achievement than the set established by student teachers trained in traditional programs. Furthermore, these teachers are judged by their pupils to be more effective teachers. Students trained with instructional systems seem also better able to modify their instructional behavior. The technique is most effective when used for a considerable length of time (Peck and Tucker 1973).

Most recent attempts at teacher education programs based on the instructional systems approach fall under the rubric of "Competency Based Teacher Education." CBTE is "an attempt to link empirically founded theory with practice, to demonstrate the connection between achievement of desired consequences and the mastery of particular teaching competencies" (Patrick 1973, p. 2).

Competency models attempt to reduce the number of disorganized goals that characterize most teacher education programs and demand more precise definitions of the skills necessary for effective teaching. CBTE models seem to conceptualize teachers as technicians whose impact on student learning will be increased if they have a more precise instructional map to guide their teaching. The function of CBTE is to instill in teachers workable cognitive maps of teaching.

Feedback to teachers about their performance tends to increase their mastery of teaching skills.

While feedback about the student teacher's performance has always been central to teacher education programs, such feedback has typically been unsystematic and poorly structured. However, recent research has established that to be effective the feedback process must possess specific characteristics; it must focus on concrete teaching behaviors, be given in terms teachers can understand, create a tension for change in the teacher, and involve low risk. In addition, recipients must have a clear picture of what their behavior should look like and be allowed to make a public commitment to the desired model (Tuckman 1976).

Researchers have also found that immediate feedback is more potent than delayed feedback (Heinrich and McKeegan 1969). Feedback that involves supervisors and peers is more effective than solitary self-confrontation. When a carefully structured instrument is used, pupil feedback tends to be more effective than conferences with a supervisor (Tuckman and Oliver 1968).

Using systems of classroom interaction analysis tends to cause teachers to engage in a wider variety of teaching behavior.

Since at least the beginnings of the Progressive Education movement, teacher educators have exhorted teachers to create better classroom climates. This tradition has resulted in a large number of instruments to measure classroom interaction. Without exception these instruments "are designed for use in live observation, ask the observer to make judgments for time intervals and provide a single facet of judgmental categories" (Dunkin and Biddle 1974, p. 362).

Classroom analysis measures generally generate two kinds of findings—a general score indicating the "warmth" of the classroom and individual scores for separate categories in the instrument. Typical categories are teacher praise, teacher acceptance of pupil ideas, teacher criticism, and teacher/pupil talk (Dunkin and Biddle 1974).

Classroom analysis measures have been widely used in teacher training to encourage teachers to use a wider variety of "moves" and to employ more "indirect methods" in their teaching. Several studies (Amidon 1970; Bondi 1970; Finske 1967) show that teachers trained in classroom analysis do adopt more indirect styles than teachers who are not taught these systems. The research indicates that teachers trained with classroom analysis measures use significantly more praise and less criticism in their teaching, employ a more conversational style, are more accepting and make better use of student ideas, and, most importantly, are more aware of their classroom behavior and able to employ a wider variety of "moves." Also teachers trained with classroom analysis are rated as more effective teachers by their supervisors (Peck and Tucker 1973).

Teachers trained with microteaching techniques display a more desirable pattern of teaching behavior than teachers trained in more traditional curricula and instruction programs.

Microteaching is a training technique in which "a scaled down teaching encounter in class size and class time is established" (Allen 1966, p. 1). Most microteaching systems involve four parts: (1) the teacher develops a lesson to teach a skill; (2) the five- to ten-minute lesson is taught to a small number of students; (3) the teacher and a supervisor analyze a videotape of the lesson; and (4) a refined version of the lesson is retaught to another group of students (Kallenbach and Gall 1969).

Despite the many exaggerated claims that have been made for microteaching and the many sins committed in its name, research shows that it can be an effective tactic. Teachers trained with microteaching show a generally higher level of competence than similar trainees in traditional programs (Allen and Fortune 1966; Cooper and Stroud 1967). They are better able to determine student readiness, motivate students, and evaluate pupil comments (Emmer and Millett 1968). Microteaching students are better equipped to ask divergent questions, probe more, lecture less, and obtain more pupil talk in their classroom (Davis and Smoot 1969). They are also given high effectiveness ratings by their pupils (Limbacher 1969).

Active involvement in the teaching-learning process leads to more mastery of skills than giving theoretical training before firsthand exposure.

Getting students into a live classroom at the onset of their professional training does not seem a very dramatic prescription. Unfortunately, it is a tactic that is practiced too infrequently. The first acquaintance most teachers have with the public school is their student teaching experience which generally occurs at the conclusion of their training program.

While systematic research on the subject is in its infancy, evidence suggests that early experiential experiences are beneficial. In the most comprehensive, carefully defined study of early experience, students were shown to be fairer, more democratic, responsive, understanding, confident, and systematic in their teaching than were students in a control group. They were more indirect in their teaching and better able to elicit self-initiated activity in their pupils (Sandefur 1970).

Active involvement seems also to encourage the development of deeper career commitments and more democratic teaching styles in preservice teachers (Clothier and Lawson 1969; Veldman et al. 1970). In another early experience study, students were shown to have more mastery of basic teaching skills such as pupil evaluation, motivation, and objectives clarification (Emmer 1970).

Explicit training in human relations tends to develop more empathetic understanding in teachers.

Human relations programs attempt to train teachers to recognize, judge, and modify their assumptions about children which might affect their teaching performance. Most human relations programs emphasize experiences that cause teacher trainees to analyze their values assumptions and interpersonal skills in live social context—either public school classrooms or realistically simulated laboratories.

Although research that tries to assess efforts aimed at altering people's values is difficult and controversial, the research on human relations programs generally supports the proposition that training experiences improves both the teacher's view of the students and the students' relational skills (Peck and Tucker 1973). Specific research shows that even brief training sessions can raise teachers' empathy level from unresponsiveness to a high level of sensitivity to pupils' needs and feelings (Bierman et al. 1968). Techniques such as sociodrama and sensitivity training have been effectively employed to increase teacher empathy (Dysart 1953; Gregg 1969; Lee 1970). Teachers trained with human relations techniques feel their work performance and self-esteem increase as a result of the experience. In addition, these teachers have a better understanding of classroom dynamics and report a higher level of pupil satisfaction (Peck and Tucker 1973). Emerging from the human relations literature is the conclusion that to graduate teachers with highly developed empathy skills, it is essential that teacher education programs explicitly model the desired skills in their own classroom and laboratory training procedures.

The student teaching experience is more effective when supervisors are trained to work with beginners.

Student teaching is the linchpin of every teacher training program in America. Although there are hundreds of "models" for student teaching, there is a conspicuous lack of empirical evidence as to what constitutes an effective student teaching experience.

There is, however, considerable evidence documenting the negative effects which some student teaching may produce. For example, student teachers seem to gain little in self-appraisal skills (Dumas 1969). They also tend to be more authoritarian and less pupil centered after the practice teaching experience (Gewinner 1968; Muuss 1969; Jacobs 1966; Hoy 1967). Student teachers appear to respond negatively to the press and frustration of the classroom and begin to adopt more pragmatic, restrictive solutions toward teaching problems (Iannacone 1963).

The generally negative nature of the findings, nevertheless, does show some rays of hope. Recent research suggests that an effective internship needs to be carefully orchestrated because the immediate total immersion into full classroom responsibility overwhelms most neophytes. A careful progression from tutoring to working with small groups, to total classroom responsibility should be employed to help teachers be less controlling and more pupil-centered (Walberg et al. 1968). In addition, because student teachers seem to rather uncritically emulate the model provided by their supervisors, placing interns with cooperating teachers whose attitudes toward students are superior to the interns' seems to promote a growth in interns' attitudes (Scott and Brinkley 1960).

The most important revelation from the research is simple. When interns are placed with supervising teachers who have been selected for their competence and subsequently trained in the specific skills necessary for supervising beginners, the interns' display a significant increase in their skills and techniques (Perrodin 1961; Bradtmueller 1964).

In summary, our brief review of the research literature on teacher education indicates the rather primitive state of the art. However, it seems that at least the gross perimeters of needed research and development areas have been drawn. Most importantly, the small body of literature confirms that the effectiveness of teacher training can be increased when instructional programs are based on research findings.

Developers of teacher education programs who seek to base their training on educational research should keep some rather simple prescriptions in mind:

Define teaching as a total instructional process.

Break the teaching process into manageable components.

Determine specific and understandable objectives for each of the parts.

Communicate these objectives clearly to teachers in training.

Provide the teacher trainees with practice, feedback, and methods to analyze their teaching.

Give explicit attention and teacher training in human relations and values clarification.

Model in training the skills the teacher trainees are to use in subsequent classroom training.

Develop carefully trained supervisors to advise teachers in training.

RECOMMENDATIONS FOR IMPROVING TEACHER TRAINING IN ECONOMIC EDUCATION

From our review of past and current developmental efforts for preparing teachers in economic education, several research and training needs for economic education are evident. These are summarized below as recommendations for improving teacher training in economic education.

Research Needs

Many research studies in teacher and economic education are not useful because they are global in orientation or based on field surveys, inadequate samples, and poor research designs. Economic education should encourage the production of more definitive information about effective teacher behavior. Such efforts should promote experimental research that utilizes classroom settings, multiple outcome measures, carefully selected samples, and robust experimental designs. Above all, these inquiries must focus on research questions that are directly concerned with improving teacher education in economics. Specifically, we recommend that organizational effort take the following directions.

- Determine the impact that courses in economics have on effective economics teaching.

While it seems reasonable to assume that the more economics course work teachers take, the more effective their teaching will be, there is little evidence to document this assertion. While numerous attempts have been made to identify and organize the structure of economics and to make this knowledge more accessible for teachers, there is little evidence that knowing more economics makes one a better economics teacher.

Research documenting the different effects that subject knowledge has on teaching economics needs to be conducted. For example, are there plateaus of learning in economics? If so, what are they and what implications do they have for rationalizing K-12 curriculum and teacher education? Does a basic introductory course in economics provide sufficient "perspective" on the discipline? Must an elementary teacher (or even a secondary social studies teacher) "acquire" this perspective before attempting classroom translation?

- Conceptualize and transmit to teachers in training programs knowledge about the nature of children's economic thinking.

Other social sciences, notably political science, have accumulated a large body of knowledge relating to how children come to know and think about social phenomena. At present there is little information about the growth of economic imagination. Research that studies this process could answer fundamental questions about how children come to hold particular economic views and how their thinking changes over time. The inclusion of findings from "economic socialization" could help teachers plan, develop, and teach economic education programs much more effectively.

- Explore the socialization of teachers to determine what training experiences result in high professional commitment to teaching economics.

Teacher education in economics must seek ways of increasing teachers' commitment to teaching during their training. Among the most potentially exciting strategies available are those of professional socialization. While the medical and legal professions have amassed considerable knowledge about the effects of their training programs on professional commitment, few studies in educational training and none in the social studies or economic education have been conducted. An analysis of studies in other professions could provide interesting hypotheses about the processes which might strengthen commitment to the teacher role.

- Develop recurring research and national assessments for teacher and student knowledge and for teacher training in economics.

As in all fields of education, there is need for a systematic national assessment of teacher and student knowledge in economic education. Similarly, we need current profiles of the training backgrounds in economics among the nation's teachers. Although some regional and institutional studies have been conducted, no systematic national study has been attempted. If we are to evaluate our progress in economic education, such data is needed on a recurring basis.

Teacher Training Program Needs

The number of teacher training models and programs is almost identical to the number of colleges and universities that train teachers. Each institution has its own program designed to meet its institutional needs. The number and types of inservice teacher training models and programs in economic education are also numerous. Few of the institutional or inservice programs have been evaluated or analyzed in light of either current research or needs. Consequently, we recommend that teacher educators in economic education take the following steps.

- Mount teacher education models based on research findings.

The number of new models for teacher education in any given year is generally somewhere between the number of declared Democratic presidential candidates in 1976 and the yards O. J. Simpson gains in a typical game. The *Journal of Teacher Education* virtually abounds with these bold new ventures. With the notable exception of a few recent protocol projects, most new programs are informed with more common sense and goodwill than research support. New programs ought to be mounted on a small scale and tested at every step of the way by vigorous evaluation that is, in turn, based upon previous research.

- Develop teacher education programs based on the achievement of commonly agreed upon and specifically identified competencies.

Virtually the entire thrust of educational research in the past decade suggests that effective teaching will occur *only* when teaching is more precisely defined. Although such definitional specificity remains in an embryonic state, it is possible to mount programs on this almost neophyte educational science. "Competency Based Teacher Education" is the best extant illustration of an effort to utilize research findings in teacher training programs. Complex acts such as teaching need precise, testable models; at present most teaching models are abstract, vague, and incomplete. The field of economic education should, therefore, carefully and critically explore the potential of CBTE.

- Clarify the role of values and the process of valuing in economic education training.

Although economic decision-making involves making choices among competing values, models for teaching about valuing have received little attention in most economic education training programs. Explicit values models should receive a high priority in the preparation of economics teachers.

Among the many competing values models, three—the moral development, values clarification, and jurisprudential models—seem to have the most utility for the economics classroom because they are well developed, have been tested for effectiveness, and are widely used.

- Model in training those principles of teaching and learning that the teacher education program seeks to transmit.

Our review of research on teacher effectiveness clearly concludes that if teachers are expected to display particular behaviors, they must be repeatedly shown these desirable behaviors in training, given ample opportunity to practice the behavior, and provided with enough feedback to alter their ineffective behavior.

The simplest application of this strategy involves four steps. First, the desired behavior is presented to the teacher through readings and enough discussion to facilitate a clear understanding of the behavioral dimensions. Second, the student is taught a demonstration that illustrates the behavior. Third, the student teaches a lesson modeling the behavior to a small group of peers and is given concrete feedback. Fourth, the student tries the behavior in a live classroom. Although there are more complex applications of this strategy, any use of the tactic must employ a modeling-practice-feedback sequence.

- Encourage the development of educational translators in their role as intermediaries between educational researchers and teacher trainers.

There is a decided lack of communication between educational researchers and trainers. The obvious symbiotic relationship seldom occurs. In fact, it seems the two groups rarely interact or even read one another's literature. As a result, many findings from educational research fall on fallow ground, and teacher education programs continue to be mounted on nonempirical foundations.

To fill the gulf between these two groups, a middle-person role, much like that already developed in economic education between economics and inservice training, needs to be developed. The translators in this role would stand midway between the two camps and analyze, interpret, and summarize research findings for teachers and teacher educators. Simultaneously, translators would present to the research estate those problems and concerns that trouble practitioners. Inevitably, better working relationships between the two groups would develop.

- Develop more cooperative working relationships between economists and teacher trainers in undergraduate economic education.

Most economists and many economic education directors have not been actively involved in the pedagogical training of undergraduate students. Academic economists' primary contribution has been limited to the teaching of specific economics courses, while many economic education directors have been preoccupied with materials and curriculum development or inservice teacher training.

Economists need to continually evaluate the usefulness of their courses to preservice teachers and to analyze their teaching behavior as a model for future teachers. Teacher educators need to plan new ways for both economists and others in economic education to become more involved in undergraduate programs. Cooperative efforts in the determination of course work for the economics education major, as well as participation in the methods course and student teaching, should be considered.

- Initiate means for systematically analyzing and disseminating results from both inservice and preservice teacher training in economic education.

In the past several years, thousands of teachers have participated in various inservice economic education programs, especially those offered by the economic education centers across the country. Most of these programs have been designed to upgrade teachers' knowledge about economics and their skills in teaching economics. Similarly, thousands of teachers have been trained in undergraduate economic education programs. Unfortunately, few of these instructional efforts, at either the inservice or undergraduate level, have been systematically analyzed or reported. Syllabi outlining course content and specifying particular training techniques need to be collected. In addition, critical evaluation of teacher knowledge and skills resulting from student learning needs to be completed and the findings shared with others involved in such programs.

- Expand inservice training programs in economic education for teacher trainers.

Although both economists and educators participate in the preparation of the preservice teacher, the primary responsibility for teaching specific pedagogical skills and the utilization of various economics curriculum materials has traditionally belonged to the teacher trainer, i.e. the methods instructor. Unfortunately, many methods instructors today do not have an adequate understanding of economics, the various teaching strategies applicable to economics, or available economics curriculum materials.

To increase the effectiveness of teacher training in economic education, renewed efforts must be made to increase the inservice training of methods instructors. Such programs should focus on teaching basic economic concepts, applying these concepts to typical classroom situations, and demonstrating various curriculum materials. Teacher trainers should be given ample opportunity to plan and teach lessons applicable to their methods courses. Recent inservice programs for such instructors at Purdue and Colorado exemplify the type of efforts needed.

- Review and propose minimal certification and graduation requirements for teacher education in economics.

It is evident from the survey data reviewed that there exists a continuing need for periodic review of certification and graduation requirements from state departments of education and teacher training institutions. While survey results indicate that some progress has been made recently, much more is needed. Economic education needs to reexamine the California Advisory Seminar proposals (and others like them) and reaffirm minimal standards for teacher certification and graduation in economics.

# # #

As the tide of activity in economic education during the past decade begins to stablize, it is appropriate to take a reflective look at the field. This paper has sought to couple that examination with some recommendations for the improvement of teacher education. Through this effort we have attempted to provide a blueprint for the improvement of teacher education in economics.

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A Response to "Current and Future Needs for Teacher Training in Economic Education"

Harris L. Dante

In reply to the Mackey, Glenn, and Lewis paper, this respondent agrees with most of the paper's conclusions and recommendations. However, he goes beyond their recommendations in suggesting that more attention be given the role of economics in general social studies, the interrelationships between economics and the other disciplines in social studies, and relationship between economic education and school culture.

The paper presented by Professors Mackey, Glenn, and Lewis is thoroughly done. This response will touch on some problems that were not dealt with by the authors and raise certain issues in another context.

THE STATUS OF TEACHER TRAINING IN ECONOMICS EDUCATION

It does seem that in spite of all the efforts described, there is relatively little economics taught as a separate course. Moreover, teachers responsible for economics at elementary and secondary levels, as well as methods teachers and supervisors at the college level, are inadequately prepared. For example, in Ohio, despite more than a quarter century of extensive activity by the Ohio Council for Economic Education, only 20,230 of the 921,004 students enrolled in secondary social studies in 1973-74 were taking an economics course (these courses were listed under eight different titles). Nearly 10,000 more students were enrolled in psychology courses (Walker 1974).

Project materials have had the problem of dissemination. Meno Lovenstein's *Economic Curricular Materials* (1966), one of the major projects under the U.S. Office of Education Project Social Studies, contains a detailed

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ninth-grade economics course and is sitting on the shelf having scarcely seen the light of day. Studies indicate that only a small minority of social studies teachers are aware of the projects and fewer use them (Guenther and Duman 1973; Kimball 1970). Moreover, the new curricular materials are not teacher proof. Some teachers have been unrealistic in the kind of help they expected the materials to provide; others have reverted to their usual way of teaching after attendance at workshops and institutes.

The recommendations of the California report set some desirable goals, but it is quite clear that most people teaching economics do not have this kind of training. Neither is it likely that most economics professors will become involved in teacher training, except in the most minimal way. Economics professors, like scholars in other disciplines, are primarily interested in their own areas of specialization.

There is little doubt concerning the paucity of research on the training of economics teachers, and the authors' conclusions represent an accurate assessment of this situation. One problem in education is that we continually reinvent the wheel. Within the literature dealing with social studies curriculum are studies which were done forty or fifty years ago and yet are quite relevant today (Billings 1929; Marshall and Goetz 1936). Moreover, much educational research consists of bits and pieces and is not cumulative (Gross 1972; Shaver and Larkins 1973). There is little new information regarding the characteristics of good teachers, and agreement on the "primitive state" of research has already been noted. It is clear from research that teachers do not learn much about teaching by being talked to and that many teacher education programs lack the continuous skill practice and field-based experiences prescribed by the authors.

The writers' recommendations for meeting research and teacher training program needs are a contribution. Knowing more economics may not in itself make better teachers, but teachers cannot be economic illiterates. All educators need to know more about how people learn. It has been demonstrated that students can understand the illustration of certain economic principles at any given grade level. It is less clear to what extent the understanding of a given illustration transfers to the economic principle involved or the technical terminology later employed.

The final recommendations presented by the authors are useful and promising. Some economists would find the value question troubling because they see their role confined to economic analysis and unrelated to social philosophy. Thus, contrary to the goal of many organized groups supporting the study of economics, these economists do not regard it their responsibility to support capitalism, or any other particular system, but rather to analyze how successfully it allocates resources, distributes income, and manages the economy in general.

The recommendation to expand inservice training programs in economic education for teacher trainers seems especially fruitful. The development of collegiate centers for economic education represents a direction that could be most productive.

ADDITIONAL ISSUES IN ECONOMICS EDUCATION

Being in substantial agreement with the paper, I would now like to raise some issues which were not included but which warrant serious discussion.

The Role of Economics in a Modern Social Studies Program

Generally the goal of social studies is seen as helping students engage in critical thinking regarding controversial crucial issues of our modern democratic society. Thus, there is much emphasis on decision making, problem solving, and value conflict resolution (Engle 1971; Shaver 1967; Wesley 1972). While there is no substitute for an independent economics course, there is a question about the place of economics in the social studies curriculum.

Economics is central in any analysis of modern social issues and necessary to the decision making at the heart of social studies. All students enrolled in various social studies curricula should have a good foundation in economics. Since economics often conflicts with students' conventional wisdom, it is imperative that any social studies teacher have an understanding of basic economics. There is probably more distance between beliefs of the professional and those of the layman in economics than in any other field. The issues of what economics should be taught, when and where should it be taught, and how it should be organized are questions which should be decided jointly by the professional economist and the social studies educator.

There is some danger that economists might ask for too large a share of the curriculum. They should not make the mistake geographers made in insisting on their independence and espousing the view that only geographers could handle geographical material. It would be more realistic for geographers to help history teachers to the point that they would at least pull the map down once in awhile. Much more attention should be given to how economists can aid the social studies teacher, whose primary training is in another discipline, develop economic concepts and generalizations.

Some argue that the economic understandings needed for intelligent decision making do not require a full principles course. They assert that history teachers or problems of democracy teachers need to relate economics to the issues at hand and to help students correct misconceptions—endeavors which do not necessitate a course in economics principles. After surveying the increased attention to economics in the schools during the early 1960s, John R. Coleman concluded "What we must do is to settle, not apologetically, but gladly, for a few things done well. We must, in short, not confuse coverage with understanding" (Coleman 1965, p. 76).

The question may be, Is it less desirable to somewhat fragment a discipline, at least in terms of a complete understanding of its structure, or to fragment the understanding of a complex problem? Dan Selakovich contends, "Those who are charged with the teaching of the social studies must begin somewhere in an attempt to bring together and utilize for teaching purposes the content of the several disciplines of the social studies, even though the effort may lack something in the expertness of its analysis'' (Selakovich 1965, p. 55).

The Interrelationship of Economics and Other Social Sciences

If the new directions being plotted for the social studies are to be followed, the interrelationship of economics with the other social sciences must be examined. This would require a movement in the direction of multidisciplinary, if not interdisciplinary, approaches. Moreover, it is generally agreed that the social studies today involves much more than simplifying the instruction of separate social science disciplines (Engle 1971; Shaver 1967; Wesley 1972). Many economists are recognizing that the nature of modern social problems is forcing more interdisciplinary understanding and more application of economic theory. It is already apparent that the ''new social studies'' of the 1970s will be different from that of the 1960s, with its emphases on the structure of separate disciplines and on cognitive learning.

If all the problems of economic education have not been solved as new ones have emerged, it is not because economics has become obsolete. The fact is that economics is a dynamic science, with a body of knowledge vital to any modern social studies program. As Charles L. Schultze (1972) has observed, the fault is more likely to be the underemployment of economics.

A growing number of economists, not just the Galbraiths and the Heilbroners, has criticized the quantitative aspects of our emphasis on economic growth. All six economists who cooperated with the Committee for Economic Development in contributing to the fourteenth annual review of economics for *Saturday Review* ''are predominantly negative in appraising the relevancy of their field'' (''Does Economics Ignore You?'' 1972, p. 33). They trace the troubles of modern ''post-Keynesian'' economics back to the 1960s and the emergence of problems for which economics held no answers.

The goal of economic growth has itself been threatened by a host of critical domestic issues and aggravated by the neglect of the public sector toward such foundations of the future as education and basic science. Problems of industrial pollution have raised questions about the extent to which continued economic growth threatens not only the ecological base of the economy but human life as well.

Thus, there is a question about whether the great social disorders of our time can be managed without ''rocking the boat by redistributing income or breaking up the great industrial and financial centers of power'' (Fusfeld 1972, p. 36). Economists, too, must be concerned with the quality of life and will have to unite with other social scientists in a broad attack on modern social problems. Leonard Silk in the *New York Times* writes:

> *It seems to me that efforts to solve even . . . traditional economic problems cannot be hampered, but only advanced by a deeper understanding of many matters that lie beyond the boundaries of conventional economics* (Silk 1972, p. 35).

While the ideological differences of a Galbraith, a Samuelson, and a Friedman have always been evident, there is growing agreement among professional economists that there must be more application of economic theory to social problems and more interdisciplinary cooperation in a concerted effort to find solutions.

The report of a research study directed by Phil Wass at the Center for Economic Education, University of Connecticut came to the same conclusion. The report, *Developing an Economic Education Program for the Future,* states, "Economic educators of the future, should be known, perhaps as social science educators, or at least have the background, ability, and interest to promote economic education within a broader interdisciplinary content" (Morrison n.d., p. 18). Many students enrolled in comprehensive social studies programs shy away from economics. They come into the so-called social studies methods class thinking largely in descriptive terms, and their economic understanding is minimal at best. This may be because the primary interest of many students is history, but it may also raise questions about how college economics courses are often taught.

Consumer Economic Education

Another curricular problem has to do with the place of consumer economics in a social studies program and the relationship between recent movements for more consumer education and economic education in general. Consumer economics began to replace conventional theoretical economics prior to World War II, but its popularity declined during the postwar years when demands for more rigor in secondary education, including more attention to economics as a discipline, began to increase. Emphases shifted from description to analysis, from the individual to society, and from micro to macroeconomics. When an entire issue of the *NASSP Bulletin* was devoted to economic education in 1965, not a single article on consumer economics was included.

While many professional economists would agree that consumer education is important, it is not economics as they perceive it. It is true that in the past consumer-oriented courses have emphasized specific consumer problems, some trivial, and have often treated such problems in isolation. The charge has been made that such courses did little but disseminate information and good advice.

Today various consumer groups have aroused new interest in consumer education and related it to larger social problems. The subject is treated on a more sophisticated level involving the understanding of price discrimination against minority and low-income groups, pricing policies, the intricacies of credit, and the psychological basis of advertising. Thrift is also considered in a variety of social contexts to develop insights and concepts that illuminate many consumer problems.

Charles Chandler sees consumer education as part of a social studies program rather than home economics, business education, or vocational education curricula. He notes that it could also play an important role in translating economic theory into action. "Entering the world of economics through the consumption door might well provide much needed motivation and a certain realism to the study of economics generally" (Chandler 1974, p. 148).

Because the economic system exists ultimately for the sake of consumption, changes in wants need to be studied. Hence the study of secondary economics should focus on process, development, and change. Chandler concludes, "An economic system, after all, ultimately must be judged by the human satisfactions which it makes possible. And this is what consumer education is all about" (Chandler 1974, p. 149).

Economic Education and the School Culture

It may well be that we have concentrated on changing the program and the teacher without sufficient knowledge of and accounting for the culture of the school. The school system often permits and tolerates diversity, with limits determined in part by faulty self-perceptions of both principals and teachers. Relations between specialists and principals, as well as specialists and teachers, contribute to the problem. We need to understand much more about the culture of the school as it relates to change (Sarason 1971).

# # #

This response has focused less on the problems of economic education apart from social studies education and has concentrated more on the contribution economics can make to an issues-centered social studies program. It has also examined what help can be given teachers whose primary training is in other social science disciplines and how social studies methods teachers can learn more about economics and how to teach it.

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A Response to "Current and Future Needs for Teacher Training in Economic Education"

Lawrence Senesh

In this response, the author challenges some of the conclusions reached by Mackey, Glenn, and Lewis and suggests that the conclusions do not reflect the reality of the problems encountered by most developers of teacher training programs. He also suggests several additional recommendations, including the forging of a grand alliance between schools of liberal arts and schools of education, the development of a new type of economics educator who can translate the frontiers of economics knowledge into K-12 curriculum, the redesign of teacher training programs to focus on educational development as a K-12 continuum, and the implementation of inservice training programs as ongoing, building events rather than "patching up" efforts.

My response to the paper of the Minnesota team is distorted by two of my life experiences. The first occurred six years ago when the University of Colorado received a substantial grant from the National Science Foundation to improve the social science and teaching competence of future elementary and secondary teachers. We developed a creative design to coordinate the theoretical structures of six social science disciplines—economics, political science, sociology, social anthropology, social psychology, and the search for justice—and demonstrated how the fundamental ideas of these disciplines may be related to the experiences of youth from grades 1-12. The program was adopted by three universities, one also supported by NSF to assess the transferability of the program.

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The program is successful, but there is one hitch. Scarcely any education majors, for whom the program was designed, are enrolled in our class at the University of Colorado. It is argued that requiring any specific social science course would violate the academic freedom of the students. So, students elect courses in social sciences with little regard for the future usefulness to their profession. It is possible for education majors in elementary education or education majors in secondary education distributed studies to fulfill the academic requirements in social science with such courses as Self and Consciousness, Marriage and the Family, or Witchcraft and Sorcery.

The second life experience is a discovery. I discovered that the School of Education is a harem surrounded by high walls. Inside the walls are the members of the harem—the faculty. Some are young; some are old; some are attractive; some are not so attractive. The dean is the sultan and he controls the harem. A few yearning lovers, usually aging full professors from the liberal arts, are running round and round outside the walls, hoping that before they suffer a heart attack they may get into the harem for one day. There is little hope for such pleasure. Assistant professors from the liberal arts college do not dare to chance such an illicit relationship with members of the School of Education. The "Big Brother" from their own department is watching them.

THE RELATIONSHIP BETWEEN ECONOMICS AND EDUCATION

I envy the Minnesota team because they have not had such experiences. Perhaps this is the reason their paper rests on two unstated assumptions: (1) there is perfect mobility of talents between the liberal arts college and the school of education; and (2) faculty behavior is rational.

The team is asking a revolutionary question which before only heretics dared to ask, Is a basic introductory course in economics sufficient for a perspective on the discipline? This question is legitimate not only for teacher training but also for the liberal arts program.

Unfortunately, the *Journal of Economic Education* is so preoccupied with measuring the effectiveness of economic principles courses that it gives no attention to innovators who might completely replace the principles with new, more imaginative approaches to economic competence. At present, articles without quantitative measurement are not accepted by the journal.

The authors also refer to the options of one- or two-semester introductory courses. It would be interesting to learn the content of the one-semester course. It is my hunch that most universities sell economic knowledge by the pound. Future teachers who take a one-semester course may get only half the beast, either macroeconomics or microeconomics. There are few universities which offer a one-semester terminal course for noneconomics majors.

TEACHER TRAINING

The Minnesota team devotes considerable attention to the question, How can economic knowledge be transmitted to the teacher, to the teacher trainer, and to the elementary and secondary student? The authors state that the models for preservice and inservice training are innumerable. According to the authors, there are as many models as there are Democratic presidential candidates in 1976. However, this analogy is not accurate. The Democratic candidates present a wide spectrum from Fred Harris to Henry Jackson. I would rather compare the range in training models to the spectrum between the Republican candidates, Mr. Ford and Mr. Reagan.

To illustrate, the model for most inservice summer institutes calls for: (1) economists to lecture from their old classroom notes in the morning; (2) educators to lecture on curriculum theory in the afternoon; and (3) economists and the educators to carefully *not* meet. As a result, in almost all workshops the content and methodology are hopelessly divided.

The authors ask a moratorium on the development of teacher education models unless the models can be plugged into a vigorous research design. I urge exactly the opposite approach. Get funds for a dragnet operation. Canvass innovators and innovative practices throughout the country and study them to find out what makes these innovators and innovations tick.

I urge that resources be spent to organize multidisciplinary experimental teams in colleges. These teams can identify and observe those academic gatekeepers who promote or hinder the formation of an educational system committed to improving the economic competence of future teachers. These experimental teams can develop a new system, a yardstick operation, which combines knowledge and teaching competence for elementary and secondary teachers.

With such a preservice system, the inservice training program will fall into its proper place. Workshops will cease to be the repair shops of defective teacher training programs. Their task will be to close the gap between the frontiers of knowledge and the curriculum. Economic educators leading such workshops will have new missions. They will become scouts who scurry back and forth between the frontiers of knowledge and the classroom.

I would like to add a new recommendation to those of the Minnesota team—encourage the training of a new type of economic educator who will be able to translate the frontiers of knowledge into the K-12 curriculum. In the past, the educator was responsible for transmitting old knowledge and culture. Today the body of knowledge is expanding so rapidly that economic educators must be equipped to transmit new knowledge, and this transmission must occur immediately; it is no longer possible to wait ten or 20 years. It is important for economic education to be dynamic and geared to the future. Ph.D. candidates in economics and doctoral candidates in education should be required to attend a seminar in which they are exposed to learning theories which help them relate the cutting edge of knowledge to the experiences of students in every grade level.

TEACHING PRACTICES

When it comes to transmitting knowledge to the student, the team recommends that teachers should know the nature of children's economic thinking. This recommendation is very narrow. I recommend that teachers study childrens' life experiences—experiences which are potentially so meaningful that the fundamental ideas of economics can and should be related to them.

There should be a new emphasis on the importance of values in teaching economics. It is extremely important that students identify those national priorities which will build a more perfect union and which are based on our Constitution's ideas of justice, domestic tranquility, common defense, and the blessings of liberty. If the class agrees that the national priority is the use of resources for improving the quality of life, then the students should discuss which values should be strengthened to achieve this goal. No market mechanism, no coercion, can stop our environmental deterioration as effectively as changed value preferences.

The authors also emphasize the importance of professional commitment. They use the standards of lawyers as examples of professional commitment. I would hesitate to go so far. Also, the Minnesota team advises training courses in human relations. Forget these technical courses in group dynamics. I would encourage teachers to take more courses in the humanities, from which the commitment to humanity will emerge.

ECONOMIC EDUCATION PEDAGOGY

The first part of the paper is pedagogical. I plead with the authors not to write a Marxist interpretation of the history of economic education: first was the economic education jungle (thesis), which begat Brunner descending the mountain with the tablet (antithesis), which begat the Task Force of the American Economic Association recommending the teaching of "minimum economic understanding" in the secondary schools (synthesis). Out of the Task Force dictatorship, the Utopia of modern economic education will emerge.

The historian of the Minnesota team should recognize that between 1948 and 1960 the history of economic education was an exciting one. In the 1950s, economic concepts were already being related to childrens' experiences in every grade level. At the Merrill Center for Economics sponsored by Grinnell College, an exciting conference in June 1958 discussed teaching innovations in college economics. The Joint Council on Economic Education was in the forefront of revolutionizing economic education long before anybody else thought that children might be able to learn about the economic system or about economic theory. In the 1960s, the Social Science Education Consortium developed the structure of social sciences out of which a grades 1-12, concept-oriented social science curriculum was born. The progress between 1948 and 1960 was so rapid that the holy institutions mentioned by the Minnesota team have not yet caught up.

HYPOTHESES FOR EFFECTIVE TEACHING

Finally, I would like to add the following hypotheses to the authors' inventory for effective teaching:

Teaching is more effective if it is related to social reality.

Teaching is more effective if it is related to the goals of the individual and society.

Teaching of history and geography is more effective if it is related to the study of persistent economic problems.

Economic teaching is more effective if it is related to the other social science areas and to the humanities.

Economic teaching is more effective if teachers practice self-evaluation.

Economic instruction of elementary and secondary levels is more effective if it is future oriented.

Teacher training is more effective if knowing and ways of knowing are treated as indivisible.

Teacher training could be more effective if academic departments would work together in the interest of teacher training.

Teacher training could be more effective if Ph.D. candidates could be exposed to learning theories and to the management of experimental classrooms.

TEACHER TRAINING—PRESCRIPTIONS FOR THE FUTURE

The future of teacher training depends on the following actions:

- A grand alliance between the liberal arts and the school of education should be drawn; this should be a constructive interchange wherein content and methodology can merge.
- Identification of teachers should be made as early as possible, preferably in the freshman year.
- Teacher training should not be broken into elementary and secondary education because there is need for continuity in the K-12 curriculum. Current procedures are too fragmented. Educational development should always be viewed as an organic whole, and the child should always be in a K-12 continuum.
- Teachers must have a paid summer vacation and the financial security necessary to keep their minds and methods up to date during the summer

months. Inservice training programs should be ongoing rather than a patching-up of past sins.

Because the changes in our natural and man-made environments have been so dramatic in the last quarter century, the response in teacher training should be equally daring. Unprecedented reform in teacher training is sadly needed.

Needs for Evaluation in Economic Education

John C. Soper

After reviewing various approaches to evaluation in economic education, the author of this paper argues that we should focus on the impact of economic education on student achievement and give greater attention to establishing the magnitude of these effects. Soper then discusses the choice of evaluation instruments and research design and weighs the merits of nationally normed instruments versus instruments designed to evaluate specific program activities. The author concludes by proposing a general model of evaluation for economic educators and teachers who seek to evaluate their own programs or those of others. The usefulness of this model in evaluating secondary programs based on the World of Work Economic Education Curriculum is demonstrated.

> *One can be against evaluation only if one can show that is it improper to seek an answer to questions about the merit of educational instruments, which would involve showing that there are no legitimate activities (roles) in which these questions can be raised, an extraordinary claim.*
>
> Michael Scriven in *The Methodology of Evaluation*

The term evaluation, in the context of educational programming, is broad and somewhat forbidding to both the casual observer and the concerned professional. To sharpen the focus, some definitional efforts seem in order.

One useful attempt at a definition of the term has been provided by the Phi Delta Kappa National Study Committee on Evaluation: "Educational evaluation is the process of delineating, obtaining, and providing useful information for judging decision alternatives" (Stufflebeam et al. 1971, p. 40). A second formal definition, one which is more direct in its orientation, states: "Evaluation is the determination of the *worth* of a thing. It includes

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obtaining information for use in judging the worth of a program, product, procedure, or objective, or the potential utility of alternative approaches designed to attain specificied objectives" (Worthen and Sanders 1973, p. 19, emphasis added).

Although on the bases of the above definitions, evaluation can still mean many things to many individuals, for the purposes of this paper I choose to restrict discussion to "hard" or "payoff" evaluation. The principle reason for narrowing the focus of the argument in that manner is the need for substantive measures of *the impact on students* of economic education programs in general (see Isaac and Michael 1971; TenBrink 1974; Worthen and Sanders 1973). Obviously, such a restriction here does not preclude other types of evaluation (e.g., indirect or "intrinsic" types) in the field, but direct estimates of student gains in cognitive and affective abilities or achievements in economics should receive our closest attention.

"Economic education" itself is another term in need of some definition if we are to concentrate our efforts in the right direction. Fortunately, we have before us the just-completed delphi study of Horton and Weidenaar, containing a pithy "consensus view" of what we, as economic educators, are presumably about: "Economic education is defined to mean activities which promote a wider understanding of basic economic principles and their possible applications, as a matter of general education" (Horton and Weidenaar 1975, p. 44). This definition is particularly appropriate because it emphasizes that economic education is far more than just "courses in economics." Rather, economic education occurs in *activities* which may take the form of courses but may also involve the infusion of economic principles (and their application) in other (noneconomics) courses or modules.

Moreover, the Horton-Weidenaar definition stresses the general education approach of economic education. This means that economic education is for everyone, not just for potential college economics majors, college-bound youths, or some other elite subset of the general populace. When we cast the net this broadly, evaluation of our educational efforts becomes even more important because we must concern ourselves with questions about what works best for different "types" of learners, and how we can get "the biggest bang for the buck" in an era of declining real resources for education.

In combining the above definitions, we also have some additional guidance in our approach to the evaluation of economic education efforts. Policy Studies in Education is now in the process of conducting a major national study entitled, "Working Propositions: Effectiveness of Economic Education in Secondary Schools."* At the end of this paper the 27 working propositions tentatively identified in this study are stated. They provide a ready frame of reference for assessing needs for evaluation in economic education and pinpoint a number of areas where evaluative evidence is weak or uncertain.

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*This study involves the search for better evidence and better propositions regarding current efforts to teach economic knowledge and attitudes in grades 7 through 12. A tentative list of "working propositions" is now being circulated to a national cross section of interested professionals for review, modification, and extension and for confirmation or refutation of the evidence accompanying each proposition.

While no one should take the current list of propositions as definitive, it does provide us with some kind of starting point. I take as the keystone, Proposition 3: "Economic education increases students' economic knowledge." Without demonstrable evidence of the truth of this proposition, all of most of what we are up to in economic education is for naught. I say "all or most" because Proposition 4 may be considered of near-equal importance: "Economic education affects attitudes toward economic topics and issues."

Thus I take as a given that we must be able to show the worth of our programs through the gains of our students in the cognitive and/or affective dimensions relating to economics. No one reading this is likely to be stunned by such a statement of priorities; yet although it is a proposition accepted by nearly everyone, it is practiced by very few. Economic educators, in particular, are prone to slapping one another on the back, complimenting our peers on how well we "handle" evaluation—relative to other disciplines. However true this may be, our delivery of concrete evaluative studies, especially at the precollege level, is wanting in many respects. In particular, we need to know a great deal more about the *magnitude* of the impact of our economic education activities, a need which emphasizes the general requirement for using relatively robust statistical techniques such as multiple regression analysis. We also need to examine closely the differential effects of our economic education efforts on students of differing abilities. Most evaluators in the field have failed to disaggregate their data bases, especially by intelligence proxies or reading levels, to get at what works best for "slow," "average," or "fast" learners. [Exceptions to this statement can be found in the work of Marston et al. (1972) and Marston and Lyon (1975).]

Elsewhere in this volume, George Dawson reports that roughly 800 studies of economic education at the precollege level have been completed or are now in progress. However, only a small number of these studies have appeared in readily accessible places or report evaluative results of a replicable nature. Moreover, even our college-level curricula, instructional technologies, and motivational strategies are dominated by "one-shot" experimental designs. Very few studies extend beyond one institution, one classroom, one semester, or one substratum of the student population. Beyond this, few studies have been adequately specified, in a theoretical sense, making the interpretation and comparison of our empirical results tenuous at best. And few studies have been completely free of persistent methodological errors on the empirical side, meaning that generalizations are difficult if not impossible. [See Dawson (1976) for an up-to-date survey of college-level program research in economic education].

Finally, with regard to the affective or attitudinal dimensions of economic education, the 1971 remarks of Lewis and Orvis stand little changed today: "Attempts to assess the extent to which instruction in economics (or the instructor of economics) changes student opinion (attitudes or values) on controversial issues are still in their infancy" (Lewis and Orvis 1971, pp. 10-11). They cite a total of 20 studies which deal with attitudes, values, or opinion, but only half of these had appeared in published sources at the time. It should be apparent that, with a few notable exceptions, we have barely scratched the surface of the attitudinal dimensions of economic educational evaluation.*

Despite the limitations and inadequacies of our efforts to date, there can be little doubt that substantial progress has been made in the evaluation of economic education activities. Instead of dwelling on problems of the past, it is clearly more fruitful to build on its successes and attempt to establish the parameters of a general model for evaluation of economic educational efforts in the future. Prior to doing so, however, some remarks on objectives, testing instruments, and basic research design are in order.

ACTIVITY OBJECTIVES AND CHOICE OF EVALUATION INSTRUMENTS

Any evaluation must begin by considering in detail the objectives of the particular curriculum, educational instrument, or other activity which is the object of evaluation. In order for quantitative assessment of these objectives to take place, at some point in the activity the objectives must be expressed in operational terms. That is, the objectives must be formulated so that an informed, objective observer can either verify the attainment of the objectives or determine that they have not been met.

Once a set of operational, verifiable objectives has been identified, the next crucial step is choosing instruments to measure objective attainment. In economic education, as undoubtedly in most disciplines, a trade-off exists between the broad acceptability of nationally normed instruments and the extent to which such instruments validly measure the objectives of a particular activity. The virtues of widely known, nationally normed instruments are numerous and quite compelling: (1) they have been substantially "debugged"; (2) they have known reliability characteristics; and (3) they provide a clear-cut standard (i.e., the national norms) against which the activity to be evaluated can be compared. On the other hand, it is virtually certain that *some* proportion of the instrument will be invalid for the specific activity undergoing evaluation. That is, it is highly unlikely that all questions on a given nationally-normed instrument will test student knowledge of all objectives to be evaluated.

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*For examples of economic education evaluations involving aspects of the affective domain, see Horton 1972, Karstensson and Vedder 1974, Lloyd 1970, Luker et al. 1974, Luker 1972, Mann and Fusfeld 1970, Rothman and Scott 1973, Scott and Rothman 1975, Sloane 1972, and Thompson 1973. Two excellent sources concerning measurement in the affective domain are Osgood et al. 1957 and Snider and Osgood 1969.

The evaluator may then be forced to construct a new instrument specifically for the purposes of the task at hand. However, the development of such an instrument is in fact an enormous undertaking in itself, especially if the product is to be valid, reliable, and truly objective. Very few program evaluators are in a position to afford the luxury of devoting the necessary time and effort to this task, particularly when their major efforts have to be allocated to tasks such as project development and implementation. Thus, in all but a few cases, the evaluator's optimal choice will be to sacrifice some degree of task-specific validity to gain the obvious advantages of preexisting, national instruments of known characteristics.

Finally, there is the case where there is no instrument which even remotely reflects the needs of the project evaluator. Fortunately, for cognitive-domain evaluations, the economic educator is unlikely to encounter such a situation. At all but the intermediate-to-advanced levels of college economics education, nationally normed tests of economic understanding are available, largely through the work of the Joint Council on Economic Education. At the pre-college level, five such instruments are currently available and a sixth is now in progress.*

However, in the affective domain, there are no nationally developed instruments for the assessment of changes in students' attitudes, opinions, or values concerning economic matters. It is true that numerous affective instruments have been locally developed for particular purposes, but these are neither readily available nor of known or widely accepted quality. Hence, the evaluator interested in affective changes will usually be forced to develop a new assessment instrument or, at the least, to modify an existing device to suit the specific needs of the evaluator.

Whatever instruments are selected or developed, the evaluator has an obvious responsibility to check the conformance of these instruments to the stated or implicit objectives of the activity under scrutiny. To some extent, "invalid" questions or parts of an instrument may be left in the testing sequence, as these items (when they are truly invalid) will simply add random variation to the scores of the students tested. It is also possible to score only those items on a given instrument which validly measure the objectives of the activity. In any event, such considerations of objectives and evaluation instruments must occupy a significant place in the scheme of priorities for any evaluation effort. Without this careful attention, the evaluation can prove to be a disaster regardless of its technical execution.

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*The existing instruments are: (1) the *Primary Test of Economic Understanding*, (2) the *Test of Elementary Economics*, (3) the *Junior High School Test of Economics*, (4) the *Test of Understanding in Personal Economics*, and (5) the SRA *Test of Economic Understanding*. Now undergoing development is the *Test of Economic Literacy*, an 11th- and 12th-grade instrument based on the new Master Curriculum Project of the Joint Council.

RESEARCH DESIGN: SOME PRELIMINARIES

Assuming that matters concerning activity objectives and measurement devices are satisfactorily resolved, the question of research design must be addressed. The prototypical research design used in economic education evaluation has been, and in most cases should continue to be, the experimental group/control group, pretest/posttest design. In nearly all activity evaluations, the need for a dichotomous breakdown of student subjects into experimental and control groups is of very significant proportions. Without this breakdown it becomes very difficult to isolate the activity-specific learning for which we are searching. Although the experimental-control design has inherent pitfalls of its own, it remains the principal tool of the educational evaluator in assessing the impact of a given activity.

Of roughly equal importance is the pretest/posttest sequence typically employed today in economic education evaluations. Pretesting of both experimental and control groups prior to the introduction of the program, project, or activity accomplishes a number of important tasks. It provides a check on the rough comparability of the control and experimental groups; it generates invaluable data concerning the prior economic knowledge and general ability of the individual students; and it establishes a "learning floor" or baseline against which subsequent learning can be compared.

By securing pre and posttest data on both experimental and control groups, the evaluator has before him/her the necessary components of a first approximation in evaluating a given activity. These data, when arrayed in a 2 X 2 table, provide the grist for a hypothesis-testing mill, relying on the simple *t* test. Even the project evaluator with strictly limited resources (or the classroom teacher with no evaluation resources) is in a position to complete this level of evaluation. Though imperfect in a number of important respects, this mode of quantitative evaluation should be a *sine qua non* for the evaluator and a bare minimum for the assessment of an activity's worth (see Campbell and Stanley 1972).

A GENERAL MODEL FOR EVALUATION

Major curriculum development and implementation projects or any sizeable economic education activities impose requirements for more detail and sophistication in their evaluation designs than can be wrung from the above technique. In particular, the major "imperfection" inherent in the simple 2 X 2 research design is the problem of aggregation of individual student observations into experimental and control groups. Except in cases where there is a virtually unlimited sample size and where assignment to control and experimental groups is purely random, the evaluator can never be certain that observed differences (or lack thereof) in test results between the two groups is due solely to the activity being evaluated. Unless the evaluator is confident that students grouped into experimental and control categories are substantially alike in all relevant characteristics (or assigned in matched pairs), there is the strong possibility that nonrandom variation in such characteristics might be generating the observed differences (or lack thereof).

Perhaps of greater significance is the need to identify and measure the underlying determinants of student learning as they experience a given economic education activity. Uncovering these determinants is of critical importance in attempts to individualize student learning or to work on the problems of differing student abilities. Moreover, the need to pinpoint areas of powerful interaction among the underlying determinants of student learning should be clear to curriculum or materials developers. "Better" curricula or "better" materials are as likely to result from this type of scientific analysis as from the creative genius of their authors. To argue by analogy, the need for the evaluator to focus on the underlying determinants of student learning is as acute as the need of the economist to focus on the nonprice determinants of demand in trying to predict, say, automobile sales or wheat purchases next year.

Refinement of a general model for evaluation in this dimension calls for substantial data gathering as a first step. The question then becomes, What data? Here there is room for debate among economic educators (as Dawson's paper in this volume amply illustrates), but again we can take a leaf from the economist's notebook: in seeking after the nonprice determinants of demand, the economist looks for a fairly restricted set of variables, such as income or prices of related goods, rather than an exhaustive list of everything that could conceivably affect quantity demanded. In like manner, the evaluator of economic education activities ought to focus on the main determinants of student learning. Thus we ought to be interested in a model of the learning process which can be estimated reliably by reasonable economic maximizers having limited time and limited resources for data collection and analysis. In short, we need a model which is both *powerful* (in the sense that it yields reliable and consistent predictions of learning behavior) and *simple* (lest we spend all of our time collecting, "cleaning," and manipulating data, and none on "doing" what needs to be done).

Such a model should express student learning as a function of three broad classes of variables: (1) the individual student's stock of human capital, (2) the intensity with which the student utilizes that stock, and (3) the environment within which the learning takes place. The "human capital" class ought to contain variables representing the student's native endowments, including intelligence or reading level, "maturity" (e.g., age or grade level), student sex, prior knowledge of economics, and perhaps additional measures of socioeconomic or demographic background. The second category, "intensity of utilization," calls for some measure of student effort, motivation, or interest in the subject matter. Finally, the "environmental" class should contain those variables related to student performance which are not embodied in the student. For instance, the experimental-control variable is an aspect of the learning environment (and the variable we are primarily concerned with in the evaluation). Instructor, school, materials, or media characteristics properly belong in this class as well. With respect to the instructor, his or her knowledge of and training in economics should be of significance. The particular activity undergoing evaluation may also employ variations in teaching strategy or approach, or materials of divergent types and qualities. Where such variations are a significant aspect of the activity, they should be accounted for in the evaluation design. Figure 1 provides a schematic overview of the variables and time sequencing implied by this general model.

Figure 1

Schematic of Variables and Time Sequence for Evaluation

Prior to Course	**Beginning of Course**	**During Course**	**End of Course**	**After Course**
''*Human Capital*''	*Entry Level*	''*Environment*''	*Achievement*	*Retention*
Intelligence	Pretest scores	Experimental-control group	Posttest scores	Retest scores
Reading level	Attitudes	Teacher characteristics	Course grade	Attitudes
Maturity	Interest	Teaching approaches	Attitudes	Lasting interest
Sex		Media/materials		
Prior knowledge of economics		School district variables		
Family background, status or characteristics		''*Utilization Rates*'' Student motivation Time spent		
		Effort proxy		

Its focus on the time dimension highlights the need for more longitudinal studies in economic education evaluation so that we can gain a better understanding of the process of knowledge (or attitude) retention (or decay). Ideally we would hope for some residual impact as a result of our activities, but evidence on long-term student retention is rare in the economic education literature (see Dawson's references and comments on retention elsewhere in this volume). Figure 1 also suggests the multidimensional nature of the ''outputs'' from the learning process. In addition to student postscores on one or more cognitive instruments, we ought to consider affective domain variables (e.g., ''attitudes'' and ''interest''), and retest scores after some time has elapsed (preferably a year or more).

At this point it may be worthwhile to pause and think about the task of collecting the relevant data in manageable ways. Figure 1 may appear to indicate a monumental effort just to assemble the suggested data base. In the most elaborate research designs, this is often the case. However, the schema of Figure 1 actually contains far more than we need in many cases. Recall the demand-prediction analogy. If we have reliable estimates of only one or two variables in each major class (i.e., human capital, utilization rates, and environment), we may be in a position to generate useful results.

In fact, we may be better off statistically by economizing on the number of variables collected for two reasons: (1) the smaller the number of variables collected, the smaller is the problem of missing data, and (2) the fewer variables collected, the less is the likelihood of nonindependence (or of "linear dependence") among the explanatory variables. In general, the latter problem is more severe than the former, but both are (or ought to be) important considerations in the design of evaluations.

Given an appropriate data base, consisting of valid and reliable pre and posttest scores plus matched variables reflecting student human capital, utilization rates, and the learning environment, how should the evaluator proceed with the analysis? Beyond the simple t tests for differences between experimental and control groups discussed above, there is a clear need for the use of multivariate analytical techniques. Methods of hypothesis testing vary widely in educational research literature, although economic educators have typically restricted their method of analysis to multiple linear regression. Such restriction is desirable, in the general case, *unless substantial justification exists for a departure from the regression model*. The fundamental reason for this assertion is that the regression approach provides the best test of a fully specified model of the type usually encountered in economic educational evaluations. In brief, it is nearly impossible to structure an evaluation design with perfectly matched groups of students who have been isolated for experimental-control purposes. A secondary reason for adherence to the regression approach is that other possible techniques (e.g., analysis of variance, t tests) are less comprehensive procedures contained within the multiple regression model. In other words, the regression analysis provides the evaluator with essentially the same information derivable from analysis of variance, correlation analysis, and t tests between groups, plus much more. In particular, the evaluator is able to examine the full range of specifiable determinants underlying the experimental design, even when it is not possible to "control" all of them at the outset. Moreover, the standard regression statistics provide information about the relative magnitudes and significance of impacts on student learning of each explanatory variable specified in the model of the learning process. We can learn, in short, not just that variable X is important, but *how* important variable X is relative to all others.

This is not to say that the multiple regression technique is problem free or that other methods should be ignored completely. However, nearly all the problems connected with the use of regression analysis are traceable to inadequate specification of the model to be tested, and these problems do not go away simply because we adopt a different technique.

In fact, the typical model used in the evaluation of economic education activities makes two assumptions which often lead to difficulties in regression approaches. First, there is an implicit assumption (indeed, a requirement of the ordinary least-squares regression technique) that all explanatory variables are independent of one another. Second, it is generally assumed that all explanatory variables *directly* affect the outcomes (i.e., the dependent variable or variables). Figure 2 is a stylized representation of these assumptions. However, we have ample evidence of the nonindependence of many of the explanatory variables diagrammed in Figure 2 (Soper 1976; Soper and Thornton 1976).

Figure 2

A Naive Causal Model: All Explanatory Variables are Independent and Directly Influence the Dependent Variable

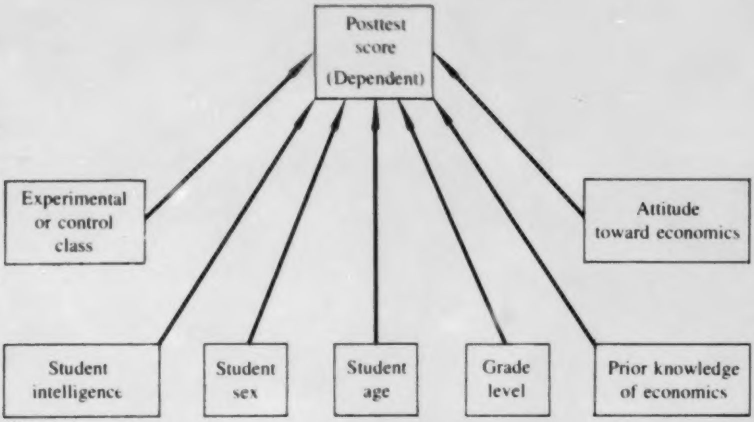
Posttest score (Dependent)
Experimental or control class
Attitude toward economics
Student intelligence
Student sex
Student age
Grade level
Prior knowledge of economics

Figure 3 suggests another way of looking at the same data. Obviously the relationships are far more complex than those indicated by the "naive model" in Figure 2. The indirect influence of some variables (such as that of "age" on "posttest score") and the feedback effects of other variables (the joint dependence of "posttest score" and "attitude toward economics") call for the use of greater care in model specification and more sophisticated statistical techniques to test the resulting models.* However, these are refinements of the typical models used recently in economic education evaluations, and they do not negate past findings. Rather, they suggest directions for marginal improvement in our future evaluation efforts. Frequently, the evaluator lacks some relevant data needed to complete the empirical evaluation of a fully specified model but must push ahead anyway, even with limited information. An example of such a data-limited evaluation follows. Clearly it has shortcomings as an evaluation, but it generates much useful information despite its limitations. (For an additional example see Becker et al. 1975.)

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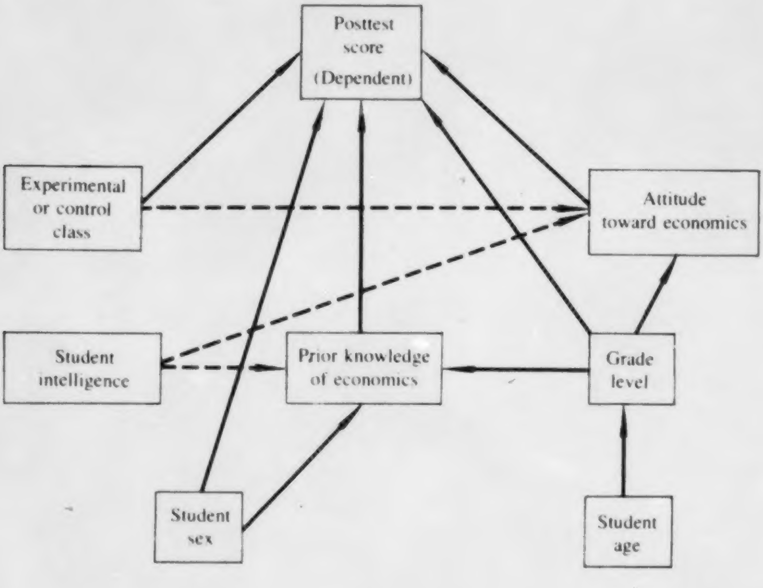
*The "problem" of joint determination of "output" variables can be treated by the use of simultaneous-equation techniques. See Johnston 1972, chapters 12 and 13. For examples of attempts to deal with specification problems in economic educational evaluations see Soper 1976 and Soper and Thornton 1976.

AN EXAMPLE, MORE OR LESS

During the 1974-75 academic year, the Illinois Council on Economic Education carried out an extensive evaluation of a statewide curriculum project for secondary students entitled, "Economic Choice in the World of Work," and based upon the World of Work Economic Education (WOWEE) curriculum funded by the National Science Foundation (see MacDowell et al. 1975; Good et al. 1977; Mantlo and Smith 1975). A quantitative evaluation component was built into this project from the outset so that participating teachers were required to pre and posttest at least one class of "experimental" (WOWEE) students and one of "control" (non-WOWEE) students during the course of the academic year. Approximately 5,000 students from 21 Illinois school districts, at grade levels ranging from fifth to twelfth and broken down into experimental and control classes, were pre and posttested.*

Figure 3

A "Complex-Realistic" Causal Model


Posttest score (Dependent)
Experimental or control class
Attitude toward economics
Student intelligence
Prior knowledge of economics
Grade level
Student sex
Student age

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*Test instruments used were the *Junior High School Test of Economics*, Joint Council on Economic Education, New York, 1974, a 40-item cognitive test of economic understanding, normed for the 7-9 grade levels and "Were I a Worker . . . ," an unpublished 120-item affective instrument developed by M. F. Smith, Project FAIS (Fusion of Applied and Intellectual Skills), P. K. Yonge Laboratory School, University of Florida, Gainesville, 1971.

This evaluation was both "formative" and "summative" or, at the least, was conducted to provide answers of both types. The goals of the evaluation were to (1) find out if the project "worked," (2) identify areas of strength and (especially) weakness, and (3) generate new data for potentially fruitful research, particularly regarding the affective domain. The first goal was purely summative in that we were attempting to assess the worth of the project objectively and its future potential. Goal 2 was formative, providing feedback to the project staff which made possible corrections and strengthening of subsequent implementation efforts. The third goal had both formative and summative aspects, since affective change was a project objective, but the incomplete state of knowledge regarding affective evaluation led us to the conclusion that much information of general usefulness might be forthcoming from analysis of the project's data base.

The tentative evaluation findings as shown in Table 1 indicate that the 1974-75 WOWEE project was successful in a number of respects. In the

TABLE 1

Regression Estimates of Student Cognitive Achievement
(Posttest Score = dependent variable; N = 1,446)

Variable	Regression Coefficient	Beta Coefficient	T-ratio
Control-experimental (C = 1, X = 0)	-2.079	-0.135	7.04**
Teacher Sex (M = 1, F = 0)	0.475	0.032	1.41
Pretest score	0.763	0.675	33.14**
Student Sex (M = 1, F = 0)	0.142	0.010	0.54
District vars.			
D_{1}	1.991	0.083	3.49**
D_{2}	2.721	0.127	5.07**
D_{3}	-0.560	-0.021	0.93
D_{4}	3.520	0.013	0.72
D_{5}	3.798	0.105	4.85**
D_{6}	0.788	0.034	1.43
D_{7}	-2.221	-0.053	2.59**
D_{8}	1.960	0.078	3.63**
D_{9}	0.812	0.008	0.43
D_{10}	-5.228	-0.064	3.35**
D_{11}	1.050	0.053	2.00*
D_{12}	-0.370	-0.012	0.57
D_{13}	-0.402	-0.010	0.50
D_{14}	-0.076	-0.003	0.12
Constant	6.347		

R^2 = 0.5315   S.E.E. = 4.84   F = 91.97**   (d.f. = 1427 & 18)

*Significant at the 0.05 level
**Significant at the 0.01 level

cognitive domain, we know that students enrolled in WOWEE classes (the experimental group) achieved posttest scores significantly higher than non-WOWEE students, other things being equal. The project staff also received feedback about specific problem areas in the first-year project (generally identifiable among the "environmental" variables differentiating school districts), which made possible corrective action for subsequent implementations. We also found that the experimental program was second only to the student's pretest score as a determinant of cognitive learning in economics. In addition, the regression evidence indicates that the curriculum was relatively free of sex bias, in that neither teacher nor student sex was a significant variable in the estimating equation.

Preliminary analysis also indicates the significance of the WOWEE project in changing student attitudes (positively) toward work as a general concept. Further analysis, now in progress, is directed at the task of providing a simultaneous-equations solution to the joint determination of cognitive and affective behaviors.

It should be stressed that this evaluation, though useful, has distinct limitations, resulting largely from restrictions on the availability of data. For example, the "human capital" class of variables is limited to the sex of the student and pretest score. Given the large number of students tested and the score of school districts involved, the project staff felt it would be a practical impossibility to obtain consistent, accurate data on student intelligence or reading level. Likewise, a proxy for student "maturity" (such as age or grade level) is also missing. More important perhaps is the omission of any variable measuring "utilization rates" of student human capital, which would presumably give us some idea of how hard students worked on the WOWEE materials. We also lack an "environmental" variable reflecting the length of class time teachers devoted to the WOWEE curriculum.* But despite these sources of misspecification resulting from the omission of relevant variables, the evaluation equations provide us some concrete notions of the effectiveness of the WOWEE curriculum project.

Thus far the discussion has concentrated on the educational benefits of the WOWEE curriculum, but no evaluation should be considered complete without some reference to the inevitable costs associated with it. One might be tempted to measure these costs by simply adding up the level of funding provided by governmental or private foundations and participating school districts. However, such figures grossly understate the real costs of major curriculum efforts as they omit the opportunity costs of participating students, teachers, school administrators, and even over-zealous project staff members (though the latter cost may be charged to "labor of love" in some instances). There are also opportunity costs in terms of curricula foregone as a result of the project activity. A rough estimate of total costs for the first-year project discussed above is $75,000. For the second and subsequent years of project implementation, these costs decline rapidly as the fixed costs of development (incurred in the first year) are spread out. But even if we take the entire first-year costs as the basis, we find that a one-point-per-student gain on the cognitive posttest costs approximately $7.50 per student. Put another way, a 20 percent increase in the average level of economic literacy costs about $15.00 per student. Moreover, this unit cost does not "correct" for gains in the affective domain or for increased cognitive achievement in other (noneconomics) disciplinary areas.

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*This ranged from as few as three to as many as eight weeks. To some extent, these differences are picked up by the dichotomous school district variables (see TABLE 1).

CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

In the foregoing I have tried to make a case for evaluation of economic educational activities based upon some quantitative techniques which have been relatively unexploited in educational research. The present study provides only fragmentary empirical evidence to add flesh to the general model presented, and even these fragments are imperfectly specified. No complete test of the approach is available at this time, but some future directions are indicated.

My recommendations regarding evaluation, beyond those suggested in the text, are as follows:

- Quantitative evaluation should be built into virtually all economic education activities from the outset. Without such evaluation, we do not know where we are starting from, where we are going, or how best to get to where we want to be.
- Major (or costly) curriculum projects in economic education ought to stress more sophisticated quantitative approaches. As the extent and complexity of the curriculum effort increases, the evaluation effort should expand proportionately.
- Serious attempts ought to be made to persuade funding agencies to pay for adequate project evaluation. As a rough rule of thumb, somewhere around ten percent of the project's cost should be earmarked for evaluation.
- Teachers and school administrators need to be sensitized to the need for substantive quantitative evaluation, even if it involves only controlled experimentation with simple pre and posttests.
- Future stress should be placed on so-called "Type IV" evaluations, the type which considers the demand side, as well as the supply side. In addition, more attention should be given to careful estimation of total project costs, including relevant opportunity costs.

Working Propositions: Effectiveness of Economic Education

A Study by Policy Studies in Education

Student Economic Knowledge and Attitudes

1. Students who have not had economic education know little about economics.
2. Students' economic knowledge and attitudes are positively related to sex (male), age, scholastic ability, and socioeconomic level.

Effect of Economic Education on Student Knowledge

3. Economic education increases students' economic knowledge.

Effect of Economic Education on Student Attitudes

4. Economic education affects attitudes toward economic topics and issues.
5. Economic education causes students to lean toward the views of trained economists.
6. Increased economic understanding causes more conservative attitudes on economic issues.

Effect on Learning Economics in College

7. Students who had economic education in secondary school usually score higher than other students in their first economics course in college.
8. Students who did not have economic education in secondary school usually learn more in their first economics course in college—presumably because they did not learn it in secondary school.

Types of Students

9. Students with higher socioeconomic background learn more economics from a given course than students with lower socioeconomic backgrounds.
10. Students with higher intelligence learn more economics from a given course than students with lower intelligence.
11. Students with higher scholastic aptitude learn more economics from a given course than students with lower scholastic aptitudes.
12. Students with higher grades learn more economics from a given course than students with lower grades.
13. Students in academic programs learn more economics from a given course than students in vocational programs.
14. Boys and girls learn the same amount of economics from a given course.
15. Students aged 12 through 17 years can learn economic knowledge and attitudes.
16. Students who are older learn more economics from a given course than students who are younger

Size of Schools and Classes

17. Neither school size nor class size have any systematic effect on how much economics students learn.

Types of Courses

18. Economics can be taught in separate courses.
19. Economics can be taught as a part of courses such as business, industrial arts, history, and problems of democracy.

Types of Teaching Methods

20. Many methods of teaching economics are equally effective: lectures, textbooks, discussions, games, problem-solving exercises, programmed instruction, audio-visual instruction, television, and so on.
21. Students learn more when economics is related to problems they see as meaningful in their own lives.

Teacher Economic Knowledge

22. Secondary school teachers know little about economics.

Teacher Training

23. Training teachers in economics and/or in how to teach economics is not essential; students will learn if their teachers are given student materials and no training.

24. Training teachers in economics increases student learning.
25. The greater the amount of teacher training in economics, the greater the amount of student learning.
26. Training teachers in how to teach economics increases student learning.
27. The greater the amount of teacher training in how to teach economics, the greater the amount of student learning.

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A Response to "Needs for Evaluation in Economic Education"

Phillip Saunders

Agreeing with Soper that more quantitative data are needed in precollege evaluation studies, this respondent suggests that Soper's example of the WOWEE program evaluation contains some of the very weaknesses decried by the author. Saunders then adds two specific suggestions for improving evaluation research at the precollege level: (1) to develop a national test bank of questions to measure cognitive ability, and (2) to collect and analyze information on the many locally developed affective instruments in an effort to develop and nationally norm affective instruments which would parallel existing cognitive instruments.

I am glad to see Professor Soper focus his paper on ''hard,'' quantitative evaluation. I share his concern that, to date, such evaluative studies at the precollege level are ''wanting in many respects.'' He correctly identifies the two main sources of these shortcomings as inadequate measuring instruments and inadequate research designs, and I would like to emphasize his important point that we should be increasingly concerned with affective outcomes as well as cognitive outcomes. I also want to underline his emphasis on the comparative superiority of multiple regression models in analyzing evaluation data. However, as his own comments and example indicate, regression analysis must be applied with considerably more care than has customarily been done in the past. Soper's fleeting mention of costs and the ''demand side'' of evaluation call attention to important areas which have been completely overlooked in the vast bulk of economic education research done to date.

Given my agreement with and enthusiasm for the basic thrust of Soper's paper, I do wish his example had done a more complete job of dealing with

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many of the weaknesses he identified. The lack of variables reflecting the length of class time teachers devoted to the WOWEE curriculum at different grade levels, for example, is a serious omission, and far too much "environmental" information is lumped and suppressed in the dichotomous "school district" variables. All the coefficients for the school district variables shown in Table I must be interpreted in comparison with the school district suppressed in the intercept to avoid singularity; yet no mention is made of this fact, nor is there any information about how the different school districts compare.

Another problem with the regression model Soper used in his example has been pointed out by William E. Becker, Jr. of the University of Minnesota. The problem concerns bias coefficient estimates for the pretest variable and bias estimates of the regression residuals in models where the posttest is the dependent variable and the pretest score is a regressor. Becker has drafted a paper detailing this problem along with the associated problem of bias estimates of regression and coefficient variance estimates in "value added" regression models where posttest minus pretest is the dependent variable (Becker 1976).

In addition to the reference cited in Soper's paper, people wanting to do serious work with regression models should also consult Frank Gery's important paper on the "gap closing" model (Gery 1972), and the discussion of this and other models in a paper by Becker and Michael K. Salemi presented at the meetings of the Midwest Economic Association in St. Louis (Becker and Salemi 1976).

Turning to the fundamental problem of developing adequate instruments to measure the different cognitive objectives of various economic education efforts, Soper indicates that using a subset of appropriately selected questions from available tests may be the best compromise between "homemade" tests for efforts that are not as broad as the specifications of nationally normed instruments and the need to have a widely accepted standard against which to compare the activity to be evaluated. This is a reasonable compromise as far as it goes, but I would add the following recommendation:

- A major effort should be made to secure funding to develop a national "test bank" of questions classified by grade level, economic concept involved (e.g., scarcity, specialization, productivity), and type of cognitive ability tested (e.g., recognition and understanding, simple application, and complex application).

The new Master Curriculum Project of the Joint Council on Economic Education might provide a natural framework around which to build the classification matrix. Several questions should be developed for each cell in the matrix. Each question should be field-tested, "de-bugged" on the basis of field-test results, and then normed for various target groups. Once such a test bank was operational, evaluators could select the questions appropriate to the objectives of their various projects and thus construct instruments which are likely to be far superior to ad hoc, homemade tests. Users of the test bank should be obligated to provide overall test results and item analysis data on each question used, and efforts should be made to refine, improve, and enlarge the number of questions in the national test bank on a systematic basis.

In the area of measuring affective objectives, I would like to add a second specific recommendation.

- A major effort should be made to collect and analyze information on the various locally developed affective instruments for the purpose of attempting to develop and norm on a national basis one or more instruments parallel to the cognitive instruments that now exist.

Depending on the results, this might be a first step in developing a national bank of affective items parallel to the national bank of cognitive items recommended above.

Given the relative lack of attention to developing effective questions to measure carefully specified cognitive and affective objectives, and given the economist's respect for the law of diminishing returns, the total welfare of the economic education movement would surely be improved if more resources were switched to the two important tasks suggested above.

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A Response to "Needs for Evaluation in Economic Education"

Jacqueline Kosecoff

Supporting Soper's call for more "hard" or quantitative evaluation studies, this respondent adds two additional suggestions for making evaluation studies more meaningful and accurate: (1) to be responsive to the kinds of information which will be convincing as evidence of the program's merit, and (2) to formulate specific questions which the evaluation's clients want answered. Kosecoff then describes some of the implications of her two recommendations, emphasizing that these procedures will necessitate more and earlier consultation between client and evaluator than is presently common and will require better coordination of evaluation activities and program design.

Evaluation as applied to educational programs is a set of procedures used to appraise merit and to provide information about the nature and quality of a program's goals, outcomes, impacts, and costs.

There are two contexts in which evaluations are most frequently conducted. In one context, an evaluation is conducted to *improve* a program and the evaluation's clients are typically the program's organizers and staff. In the second context, an evaluation is conducted to *certify* a program and the evaluation's clients are typically the program's sponsors. The context for an evaluation is determined by the information needs of the individuals and agencies who must use the evaluation information. An evaluation is performed in an improvement context when the evaluation's clients are concerned with finding out precisely where a change would make the program better. Typically, the organizers of a still-developing program

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require this kind of information so they can modify and improve the program. On the other hand, an evaluation is conducted in a certification context when the evaluation's clients are particularly concerned with determining the extent to which the program's overall quality can be guaranteed. Those individuals who sponsored program development, or who are interested in using the program, require this kind of information about a completed program's outcomes and impacts.

No matter in which context an evaluation is conducted, its sponsors need very specific kinds of information that will assist them in making decisions about the program. However, because of the present scarcity of concrete and objective evaluation studies, little information is available to economic educators and policy makers concerning the kinds of educational experiences, instructional techniques, and curricula which are most effective in promoting learning and positive attitudes. In his presentation Dr. Soper has provided a convincing reason for and examples of the need to make evaluations more objective, methodologically sound, and generalizable. To do this, Soper argues in favor of "hard or quantitative" evaluation studies that test carefully formulated instructional strategies and learning models that are structured by true experimental designs and make use of powerful and appropriate analytic procedures.

I would like to demonstrate my support for hard or concrete evaluations by offering two additional suggestions for making evaluations studies meaningful and accurate. These suggestions are complementary to Soper's in that they give perspective to information collection, evaluation design strategies and analysis procedures, and the coordination of evaluation activities.

MAKING EVALUATIONS MORE MEANINGFUL AND ACCURATE

- Be responsive to the kinds of information that will be convincing as evidence of the program's merit.

A program has merit if its goals are attained, if its activities achieve these goals and are at the same time inherently beneficial, and if there are no unpleasant consequences associated with the program. The actual evidence of a program's merit can take a variety of different forms. It is the evaluator's responsibility to determine the procedures and the types of information which will provide believable evidence of the program's merit and answers to the evaluation questions for individuals who will use the evaluation's findings. For example, in a ten-week high school course on economics, the evidence of program merit could be that the students achieve high scores on a test at the end of the course, that the students express positive attitudes toward economics, or that enrollment increases in an elective course in economics.

Finding out what will convince a client of a program's merit is an extremely important component of a concrete and credible evaluation because it directs the evaluator to the information that must be obtained, and it forces the clients to operationalize in truthful and realistic terms what they really want to know about the program. Agreeing on evidence can be a very important safeguard for both the evaluator and the client because it protects against assertions that the evalution findings are not relevant or not sufficient to prove the program's success or failure, and it protects the client against the evaluator arbitrarily collecting information claimed to be ''good'' or ''important.''

- Formulate specific questions that the evaluation's clients want answered.

Evaluation is unlike research in that the evaluator cannot determine the questions that the evaluation study will answer. Rather, the evaluator must be responsive to the client's information needs and questions. Examples of evaluation questions are:

1. To what extent were the program's goals achieved?
2. Were the program's activities implemented as planned?
3. How effective were those activities in achieving the goals?
4. For which groups was the program most/least successful?
5. How did internal and external social and political factors influence the program's development and impact?
6. What social and political effects did the program have on the environment in which it was implemented?
7. What did the program cost?
8. How well was the program managed?

In any evaluation study, the questions that will be of concern to clients will vary, and the number of questions that can be answered will depend upon the money, time, and resources available.

Evaluation questions are the heart of any evaluation, and all evaluation activities must be organized so that the questions can be answered efficiently. Also, the evaluation's clients should agree to the selection and statement of the questions.

IMPLICATIONS OF THE SUGGESTIONS

Being attentive to my two recommendations will necessarily affect the information collection plan, the evaluation design, the analysis procedures, and the coordination of evaluation activities.

Implications for Information Collection

There are many different information collection techniques that can be used to obtain evidence of program merit and to answer the evaluation questions. Consider, for example, an experimental high school class in economics and the evaluation question, "To what extent have students' attitudes toward economics improved?" To provide a credible answer to this question the evaluator could employ any of the following information collection techniques:

1. Send questionnaires to parents asking them about their children's attitudes.
2. Interview teachers and ask them about their students' attitudes.
3. Observe students in school and rate their attitudes during economics lessons.
4. Review the attendance records for the economics class.

As can be seen from this list, to answer the question about students' attitudes, the evaluator has a choice among four different techniques: questionnaires, interviews, observations, and record reviews.

These separate information collection techniques would probably yield similar but far from identical results. Each technique has unique advantages disadvantages, and requirements, and the evaluator must determine which will yield the best data within the constraints and opportunities for information collection and relative to the purposes for gathering information.

To choose one or more techniques, the evaluator should consider four factors. First, the information collection techniques should be acceptable to the client. A client may prefer, for example, to have testimonial data collected through interviews rather than through questionnaires. Second, the information collection techniques should be technically sound, and the data collected from them should be reliable, valid, and targeted to the evaluation questions. Third, the information techniques should be appropriate for the program given its inevitably restricted resources, e.g., interviews are generally more costly than questionnaires, but they can provide more personal and insightful information. Fourth, the selection of information collection techniques must take into account the time required to purchase or construct measures and to gather and analyze the information.

In selecting information collection techniques, the evaluator frequently must negotiate with the client. Suppose, for instance, the client wants to use a test which the evaluator considers unreliable in comparable situations. In such a case, it is the evaluator's responsibility to alert the client to the problem, suggest alternative solutions, and assist the client in reaching a decision. Further, the evaluator should always be prepared to recommend a solution that is technically sound and appropriate for the evaluation.

Several different information collection techniques are often used simultaneously to collect similar kinds of information pertaining to the same evaluation question. This can be particularly worthwhile when the evaluation deals with hard-to-measure areas like attitudes, values, or beliefs in which many perspectives may be necessary to get at the truth. The evaluator must, however, be wary of abusing this multimeasure approach. Violation can result in an inundation of unmanageable data that are extremely costly to read, interpret, and analyze.

Just as several techniques may be useful to collect information about one aspect of an evaluation, so a single information collection technique can sometimes be used to answer several evaluation questions. For example, a single questionnaire could be developed to obtain information about a program's administrative problems, its staff, and its impact on the community.

Implications for Design Strategies

A design strategy is a convenient method for describing the ways in which people are grouped and treated for evaluation purposes. A classic example of a design strategy is the division of persons into two groups, with one group given access to the program while the other receives a placebo program.

There are many design strategies, whose styles reflect the disciplines from which they originated, that have been successfully applied to the evaluation of health programs. Frequently used design strategies include case study designs, time series designs, and comparison group designs. All these strategies, regardless of the names used or their origins, are intended to describe how individuals in a program are to be organized for the purposes of the evaluation.

The most prominent design strategy (and the one that can be associated with concrete or quantitative evaluation) is the comparison group design. The distinguishing characteristic of this design strategy is the existence of at least two groups, one which participates in the program being evaluated and another which participates in another program or in no program at all. Traditionally, the first group is called the experimental group while the second is called a control group. If the various groups included in the comparison design are each measured several times, say bimonthly for two years, then this design can be viewed as a time series design with a control group.

Comparison group designs are frequently categorized as "quasi-" or "true-" experimental designs. The difference between these two categories is the similarity between the participants in the experimental and control groups. In quasi-experimental designs, there may be reason to suspect that there are differences between the groups aside from their participation in different programs, and that any observed differences between them cannot be conclusively linked to participation in the different programs. On the other hand, in true-experimental designs, the groups are considered to be as similar as possible, and for this reason, any observed differences can be linked to participation in different groups. To guarantee the similarity of the groups for a true-experimental design, it is necessary to assign individuals at random to the various groups, and this can be difficult to achieve. For example, in an evaluation of a new procedure to cure heart disease, it is difficult to deny treatment to some individuals. Or, in an evaluation of a college preparatory course in evaluation, it is difficult to deny participation in the program to students planning to attend college.

Considerations affecting the selection of an evaluation design strategy include the need to obtain answers to the evaluation questions and to consider any constraints on the evaluation caused by deadlines, the sample, information collection requirements, confidentiality of information, and so on.

Implications for Information Analysis

As with information collection techniques, there is a variety of different methods which can be applied to the analysis of evaluation information. These methods, no matter whether they derive from behavioral, social, or health sciences, share certain similar intentions. They attempt to describe the evaluation information in the form of tallies or frequency counts, summaries, averages, and measures of variation and range. They also attempt to explain evaluation information by comparing groups, identifying patterns and trends in events, and establishing relationships between variables.

Information analysis should be carefully planned to be responsive to the evaluation questions, and in turn, compatible with the design strategy and information collection techniques. The information analysis methods chosen by the evaluator will inevitably be those favored by his/her training, experience, and the resources available for analysis. Finally, no matter what the evaluator's preference or background, the analysis methodology must be technically sound.

Implications for Coordinating Evaluation Activities

It is essential that each evaluation question be matched to the specific techniques that will be used to collect information, and that these techniques be compatible with the design used to group and sample subjects to structure the information analysis. Violation of the principle of coordinating all evaluation activities could produce a scenario like the following.

Scenario

(IA—an Information Analyst; IC—an Information Collector; E—an Evaluator)

IC: Here is my first draft of a questionnaire to be used in our nationwide questionnaire survey dealing with the topic, "High School Seniors' Intention to Take College Economics."

E: Don't go away, I have a question. Why does the questionnaire ask students if their parents went to college?

IC: Well, I thought the answers would provide some interesting information.

E: Interesting information about what?

IC: About parents' influence on their children's educational choices. There has been some good research on the relationship between parents' and siblings' educational preferences.

E: I don't recall seeing this issue among the evaluation questions. Can we afford to ask questions about the relationship between parents' and childrens' education in addition to those with which our clients are concerned?

IC: I don't really know. I have never seen a complete list of the evaluation questions.

IA: I'd like to see these questions also. It seems that we will be collecting quite a bit of information. The demographic questions alone represent 120 items of information, and I'm not sure how to handle all these data.

Unfortunately a scenario like this is commonplace in the real world of evaluation efforts. It has been traditional for evaluators, information collectors, and information analysts to work independently of one another. As a consequence, larger programs have found it necessary to hire management consultants to explain how their many activities labeled ''evaluation'' are to be coordinated, while in smaller programs, the evaluation team has had to be creative in making the evaluation seem more coordinated than it ever was. Attention to evaluation questions and indicators of program merit offer an effective way of maintaining cohesive evaluation studies.

Part V The Delivery System

Needs for Diffusion and Implementation of Economic Education Programs—*James M. Becker* and *Gerald W. Marker*
    Response—*Charles B. Myers*
    Response—*S. Stowell Symmes*

Needs for Diffusion and Implementation of Economic Education Programs

James M. Becker, Part 1
and
Gerald W. Marker, Part 2

In Part 1 of this paper, Becker assesses the current dissemination and implementation efforts in economic education and finds a multitude of efforts but considerable duplication and fragmentation in the endeavors. He suggests that effective implementation of innovations is most likely to occur when reformers work through the existing school climate—a climate which relies on a succession of small, day-to-day decisions to effect change. In Part 2, Marker focuses on the dissemination and implementation of major curriculum projects and local curriculum development. He concludes that while there is some, and apparently growing, awareness of the major economic curriculum materials, the products have not attained high visibility or use. He also finds the impact of local development efforts, particularly DEEP, limited. Recommendations drawn from these assessments include consideration of a national curriculum project and more emphasis on changing the overall school climate in dissemination efforts.

PART I

There is a rather large and growing number of individuals within schools, universities, educational agencies, and business/civic groups committed to improving economic education in the nation's elementary and secondary schools. While the individuals involved have different backgrounds, perspectives, and concerns, all are confronted with essentially the same set of questions. What is "economic education?" What constitutes "improvements" in economic education? What changes are needed to bring about desirable modifi-

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cations in economic education? What can and should teachers, administrators, economists, curriculum developers, and teacher trainers do to effect change?

These questions suggest that improving economic education requires would-be reformers to confront a complex web of related conceptual, normative, strategic, and pragmatic issues. Changes resulting from such efforts depend on a variety of factors including: the skill and dedication of school administrators and teachers; the adequacy of the conceptions and definitions undergirding specific programs; the clarity and appropriateness of program objectives and goals; the extent and quality of research; and the degree to which schools and scholars receive the intellectual and material resources needed to improve and expand economic education.

This assessment is not an attempt to bring about "paralysis by analysis." It does suggest that long-term, substantial improvements in economic education depend in part upon increased understanding of the problems involved. Enhanced understanding of these problems should in turn enable us to act more effectively in improving economic education. This approach assumes that improvements require more rational and responsible behavior by participants throughout the system. Better products, better decisions about which products to use, and better means of evaluating, revising, and modifying products are all involved in bringing about improvements.

In this paper diffusion and implementation are not viewed as efforts to get the public to buy a particular brand of soup but as integral parts of efforts to improve school offerings in economic education. We are concerned not only with how diffusion and implementation is occurring or has occurred, but also with how it ought to occur. The recommendations include some practical proposals for improving the diffusion process.

While aware that the way a problem is defined largely determines the appropriateness of the change strategy employed, we have not attempted to define whether economic education is education about something, in something, or for something. However, the definition is important. If "good" economic education is defined as education about economic systems or about selected economic concepts, a certain set of problems arise when improvements in economic education are attempted. However, a different set of concerns arise if "good" economic education is defined as the extent to which students demonstrate selected skills and competencies.

A VIEW OF THE CURRENT ECONOMIC EDUCATION SCENE

The array of agencies and individuals working in various areas of economic education today is surprising. Business and civic groups as well as educational and professional organizations offer people interested in improving their economic understanding a great variety of opportunities—fellowships, scholarship, workshops, seminars, materials, bibliographies, text evaluations, and consultants. Information about these opportunities is readily, though not uniformally, available in brochures, newsletters, articles in both popular and professional journals, and a never-ending stream of meetings focusing on economic education. Colleges and universities, school systems, state councils on economic education, groups such as Chambers of Commerce, labor unions, the Joint Council on Economic Education, and international trade centers offer an abundance of talents, resources, and programs.

Over the past decade thousands of teachers have taken courses or participated in summer workshops, year-long institutes, and other efforts offered by interested agencies to improve teachers' academic background and teaching skills in economics. In addition, hundreds of schools have made special efforts, often with considerable outside support, to improve their programs.

This multitude of efforts indicate that the expertise, experience, opportunity, and commitment necessary for improvements in economic education are available. However, what is lacking are systematic, comprehensive assessments of the many efforts and serious attempts to compile or report plans, programs, or activities in this vast, ill-defined field. The Joint Council on Economic Education has provided some of this needed surveying and inventorying, but much is left undone.

Fragmentation, duplication, and isolation are also in evidence. Lack of coordination, cooperation, and communication is apparent within, between, and among the many institutions, groups, and programs interested in economic education. Special projects of established agencies as well as promising individual efforts are seldom linked to or nourished by other similar or complementary programs.

More responsible and effective use of the talent, resources, and opportunities available for designing and implementing sound programs in economic education requires institutional revitalization. Rebuilding efforts should capitalize on present worthwhile local, regional, and national efforts and the accumulated experience of past efforts. Particularly important are the Joint Council experiences in identifying talents and resources, inventorying materials, designing an organizational structure, training leaders and involving teachers, administrators, economists, and curriculum specialists.

Any efforts to assess the validity or achievement of economic education goals must recognize changing conditions in the schools and in society. While there are more attempts to improve economic education today than there were in 1966 or 1956, schools are much the same now as they were then. It is unlikely that they will be basically different in 1980. Yet, those agents who seek to assist schools in strengthening economics curriculum must be sensitive to the changes that have and will take place.

In the early 1960s, for example, school enrollments were still climbing, teacher turn-over was high, the economy was strong, and products of curriculum materials projects were beginning to reach a large number of schools. Today, enrollments are stabilizing or declining in many districts, few teachers are changing jobs, the economy is struggling to recover from a prolonged slump, and few curriculum projects are turning out marketable materials.

The apparent unchanging nature of schools has made many would-be reformers insensitive to the changes that do take place. In addition, reformers have seldom taken the time to understand how educators in schools perceive the changes or what problems result from such changes. To illustrate, recognizing that curricular materials developers and intended users live in different worlds helps explain why reformers often feel schools deflect, diffuse, or co-opt whatever is delivered to them. While both developers and users may share similar goals, they make profoundly different assumptions about the nature of issues and problems involved. The local curriculum development approach used in the Developmental Economic Education Program (DEEP) helps avoid this problem.

Reformers who have sought to change schools through the systems approach may have stimulated some of today's operating plans of accountability, PPBS, competency-based teacher education, and performance contracting. Other educators feel that strong leadership, agreement on purposes and goals, and adequate financial and community support—rather than accountability—should be our concern, and they have worked to this end. At the other extreme are those who assume schools would do better if they were just left unhampered by research findings, concerned parents, or budgetary considerations. The change models are based on different assumptions about the nature of educational change and the conditions needed to bring about improvements.

Among the conditions which seem likely to influence educational reform over the next several years are a decline in school enrollments, increased strength of teacher organizations, fewer teachers leaving the profession, and continued tight budgets. It is essential that economic education projects or movements begin to take these conditions into consideration. It is equally important that the programs be flexible enough to adapt to new conditions that may arise between the initiation and completion of long-term projects.

ONE DIFFUSION APPROACH: ALTER SCHOOLS' CLIMATE

The conservative environment of schools and the limited, fragmented nature of day-to-day choices in schools have convinced many educators that significant changes can only be brought about by massive, long-range, outside intervention. This attitude results in part from a persistent belief that significant transformation can occur only over a long time period. It also stems from some educators' inability to see how today's decision helps or hinders long-range goals. Yet the most significant fact about school climate may be that decisions are made by individuals facing largely predetermined environmental situations and relying mainly on tried policies and devices.* If this is the case, successfully implementing innovations in schools may depend less on continuing and increasing outside support and intervention than on convincing the skeptical insider that small day-to-day choices do contribute to significant change.

It is important that reformers consider the nature of daily decision making in schools when attempting to implement changes. This implies that efforts be made (1) to increase the likelihood that day-to-day choices are cumulative and synergistic, and (2) to develop educators' sensitivity to the potential for cumulative change in the various occasions, events, and situations which occur in the natural life of educational agencies. For example, textbook selection, faculty meetings, inservice programs, department meetings, school accreditation, release time for visiting other schools, and curriculum revision can be viewed merely as steps in initiating or implementing particular innovations. However, they can also be seen as opportunities to influence the long-term direction and nature of school life. Using these occasions to inject information, persuade a colleague, raise doubts, support a proposal, or suggest a new practice may result in significant long-range changes.

A school, like other institutions, can be viewed as a web of interrelations created by the thoughts of its participants and the communication of thoughts among participants. The constraints on schools or their subunits may not lie so much in the lack of resources or capabilities as in participants' beliefs about interactions and behavior patterns. If those beliefs change, the reality of the situation may also change.*

STEPS IN ALTERING SCHOOL CLIMATE

When a desirable innovation has been identified, what steps can best assure its successful diffusion? The following suggestions are taken largely from the *Wingspread Handbook for Educational Change Agents* (Becker and Hahn 1975).

> Determine what characteristics of the innovation—for example, cost, risk-involved, complexity, packaging—might contribute to its diffusion.
>
> Diagnose the aspects, units, or subunits of the educational system that are relevant to the proposed innovation. Who must be involved in the implementation process, and when and how will they participate?
>
> List all the situations which are likely to provide an opportunity for discussing the innovation. Decide who should make what kind of effort at each occasion.
>
> Identify the various communication channels to be used and prepare messages suitable for each.

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*For an excellent discussion of the nature of the school environment see: John Pincus, "Incentives for Innovation in the Public Schools," *Harvard Educational Review*, 44 (Winter 1974) 113-44; or Sam Sieber, "Organizational Influences on Innovative Roles," in Terry L. Eidell and Joann M. Kitchel, eds., *Knowledge Production and Utilization in Educational Administration*, Center for the Advanced Study of Educational Research, Eugene, Oregon, 1968, 120-42. Those wishing actual forms and procedures which can be used to assess a school's climate should see, Robert Fox et al., *Diagnosing the Professional Climates of Schools*, Learning Resources Corp. NTL, Fairfax, Virginia, 1973; or The North Central Association of Colleges and Secondary Schools, *Guidelines for the Evaluation of the School's Capacity for Change: An Instrument for the Measurement of the Adaptability of the School*, The Commission on Secondary Schools, NCA and the Indiana University Social Studies Diffusion Project, 1973.

Develop a plan of action. The following generalizations resulting from diffusion studies (Hull and Benson 1972) should be considered in mapping strategies.*

> Legitimization of the innovation by appropriate authorities in the system is necessary before complete installation can take place.
>
> An innovation is more readily accepted if the comparative advantage is clearly demonstrated.
>
> A clear perception of the innovation's incentives and advantages is necessary.
>
> Procedures which accomodate existing conditions without limiting the innovation's effect should be followed when possible.
>
> Those affected by the innovation should be involved in the decision to accept, reject, or modify the proposed innovation.
>
> The commitment of the adopting group, unit, or agency is crucial in the innovation's ultimate success.

How this process is applied depends on individual situations. Participants must decide at which step to begin and modifications must be made to suit particular needs. Since plans have a way of going awry, it is important to keep checking on progress and making necessary modifications.

Careful consideration should also be given to the basis used to judge an innovation's success. If the mere mention of presence of the innovation in a classroom is used as the criterion, a judgment of success will be much different than if demonstrated changes in teacher and student behavior are the determining criteria. Evaluation must also deal with discrepancies between what schools report they are doing and what they are actually doing.

In this part of the paper we are arguing that changes in the overall climate of the school culture must be used as indicators of successful change efforts. The approach puts us in the middle of conceptual confusion, intellectual controversies, and the intense politics surrounding education. If we opt for a narrower, more self-contained view of problems and issues in economic education, we limit the number of concerns and range of groups with which we must deal. But can a narrower approach be effective? To attempt to change the overall climate of schools is a big order. However, we can work toward this broad goal by continually focusing on improving the schools' capacity for self-renewal taking thousands of small steps at the day-to-day decision level.

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*See *Federal Programs Supporting Educational Change*, Rand Corporations, 1700 Main Street, Santa Monica, California, 90401 which suggests attitude counts most in efforts to introduce innovation

PART II

This part of the paper takes a narrower view of the diffusion of economic education materials and ideas. As recently as a decade ago, economics was taught in the public schools by teachers who were poorly trained in the subject and who were compelled, for lack of alternatives, to use inaccurate, uninteresting, didactic materials. The lack of alternatives was considered a design and development problem which the social studies reform movement of the 1960s and early 70s would remedy. Today some quite different materials alternatives do exist, as indicated by the latest *Checklist* of the Joint Council on Economic Education and the Social Science Education Consortium's *Data Book*. Since professional economists and economic educators were involved in the preparation and testing of the new materials, we assume that the materials are worthy of use in the schools, although other development efforts may be needed.

DISSEMINATION OF NEW ECONOMICS CURRICULUM MATERIALS

How widely are the new economics materials being used? To answer this question some recent studies dealing with the diffusion of social studies materials generally must be examined. In a 1973 study Switzer and his colleagues found that of 252 respondents in five midwestern states, only 31, or 12.3 percent, had even "heard of" the *Economics in Society* materials developed at California State University, San Jose. However, 145, or 57.8 percent, had heard of the Carnegie-Mellon Social Studies Curriculum Project, one semester of which is devoted to comparative economics study. When "subject taught" was controlled, 44.4 percent of the economics teachers had heard of the San Jose project and 77.8 percent indicated awareness of the Carnegie materials. As for actual use of the materials, of those teaching economics only 11.1 percent were using the San Jose materials while 30.6 percent were using the Carnegie materials (Switzer et al. 1974).

Walker's 1974 study done in Nebraska found that out of 353 schools, two were using the San Jose materials and 20 were using the Carnegie course, "Comparative Economic System." Eleven of the schools using the one semester Carnegie course did so in their American Government course while only one school used them in an economics course (Walker 1974). In a 1974 study Turner and Haley found that 14 percent of 980 Western states teachers were using one or more parts of the Carnegie materials (Turner and Haley 1975).

It seems clear that there is little awareness or use of the new economics materials developed by the San Jose and Carnegie-Mellon projects. Whether these materials are better or more appropriate than more traditional materials is a judgment which should be made at the local level, but such decisions are impossible when decision-makers are not even aware of the materials.

The diffusion of economics materials can be placed in a broader context by comparing it with the diffusion of new science materials. A 1971-72 study by the Center for Science and Mathematics Education at the Ohio State University and ERIC/SMEAC surveyed over 2,500 secondary schools from all 50 states. Thirty-one percent of the schools surveyed were using Introductory Physical Sciences materials while 19 percent were using Earth Science Curriculum materials; the approximate proportion of students using the materials were 40 percent and 24 percent respectively. Well over half the sample schools had adopted a version of the Biological Sciences Curriculum Study materials. Chemistry-Education Materials Study products were being used in 34 percent of the schools, and Physical Science Study Committee materials were used in 33 percent of the schools (Schlessinger et al. 1973).

Perhaps even more important than the proportion of schools adopting these new materials is the impact such materials have on other commercially published materials in the respective fields. A case from the field of civics illustrates. *American Political Behavior*, a product of the U.S. Office of Education supported curriculum project at Indiana University, devotes considerable attention to the concept "social class" as it relates to participation in the political system. Before APB there was practically no mention of social class in traditional texts. However, within four years after publication of APB a number of leading civic texts had begun to include social class as well as other concepts and principles employed in project's materials. It seems clear that once new materials are adopted by a significant number of schools, competitors begin to make the modifications necessary in their products in order to retain their share of the market, a fact which should surprise economists least of all.

A diffusion campaign is at least theoretically successful when all potential users have become aware of the materials and decided whether or not to try them. Using this perspective, it appears that the impact of the dissemination efforts associated with major economic materials has been limited. While there is some awareness and use of the materials in the field, many potential users have yet to hear about the materials or be convinced of their value.

LOCAL MATERIALS DEVELOPMENT

The Joint Council on Economic Education, through its DEEP projects, has taken a different approach to development than the national curriculum projects. DEEP was originally designed to produce locally developed materials. However, its general goals were broader: (1) to build economics into existing school curricula at all grade levels; (2) to improve teacher preparation in economics; (3) to develop and evaluate new teaching materials for economics for all grade levels; (4) to identify diverse models of curriculum revision in economic education; and (5) to disseminate the results of the experiment (Kim and Kratochvil 1972, p. 2).

Over time DEEP's primary concern has shifted from curriculum development and teacher training to curriculum revision (Kim and Kratochvil 1972, p.

26). This shift may well have resulted from the low quality of locally produced materials as suggested in a DEEP report:

> *Some of the curriculum materials developed by DEEP school systems have been nationally disseminated, but much* [many] *of the materials were not disseminated because products did not meet the criteria set by the Joint Council in conjunction with DEEP school systems and affiliated councils* (Kim and Kratochvil 1972, p. 29).

Thus, while no set of locally developed economic materials seems to have been widely diffused, the DEEP curriculum change model does appear to have been nationally disseminated through the Joint Council's 48 state councils and the 126 Centers for Economic Education. A program like DEEP which is aimed at local curriculum change involves a slow, never-ending process. Often the only persons touched by such a process are those who directly participate in the materials development since it is the process, not the products, that are of primary importance. As a result, the materials are only meaningful to those who developed them.

> *Although some systems planned extensive use of materials, materials developed were, in general, not in wide use. Most of the materials were estimated by the schools to be in use by half or fewer of "eligible" teachers and many of the materials were less widely used two years after DEEP than at its close. Only one of the systems visited had completed development of materials throughout K-12. No system visited had completed widespread implementation throughout K-12* (Kim and Kratochvil 1972, p. 33).

This is not a criticism of DEEP's effort to foster local development of material. In fact, it is difficult to imagine a more fully developed model or one that creates greater affect among participants.* However, using the DEEP program as a dissemination mechanism is questionable. Local development leads participants to do their "own thing." The result is not only expensive duplication but reinforcment of the professional folk-belief that "if it wasn't developed here, it won't work in our schools!"

The success of DEEP's dissemination effort can only be judged by what the program was supposed to disseminate. If the innovation to be disseminated was the Joint Council's broadly based program of state councils, centers, newsletters, teacher institutes, journals, and resource guides, then diffusion, as documented by various Joint Council reports, has been widespread and continues to increase. Other disciplines would consider themselves fortunate to have a similar organizational structure. However, if the program was intended to assure that new economics materials become widely used in the nation's schools, then the effort has fallen short of the mark.

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*For example, see Moseley, Russell, and H. Mike Hartoonian. *Wisconsin Developmental Economic Education Program: 1969-70 Report.* Madison, Wisconsin: Wisconsin Department of Public Instruction, 1970.

RECOMMENDATIONS FOR FUTURE DISSEMINATION EFFORTS

Despite the comprehensive nature of the Joint Council, the field of economics is more than the work of this organization. In making recommendations for future dissemination efforts, it is important to keep the entire scope of economics education in mind. Our recommendations are as follows:

- The Joint Council and its affiliated organizations should continue their activities in the preparation and evaluation of curriculum materials, local curriculum improvement (DEEP), teacher workshops/institutes, and newsletters. As state laws change, teachers leave the field and are replaced, and materials become dated, the need for such activities will continue. Where limited funds force the Joint Council, state councils, and centers to be selective in their efforts, they should concentrate on what Rogers and Shoemaker (1971) term "early adopters." These are individuals or school systems having a high degree of opinion leadership. People who regularly work with schools will be able to identify early adopters to serve as "lighthouse" schools in a given area. Messages from the Joint Council or its affiliates will be more effective if directed toward these schools.

- An emphasis on increasing schools' long-range potential for change rather than developing local curriculum materials should be continued. We see DEEP as one such strategy.

- Serious consideration should be given to developing a national economics curriculum which could be adapted to local needs. Similar projects in biology, physics, math, sociology, anthropology, geography, political science, and psychology could serve as models. A long-term, well-funded development project would produce a quality set of materials which would become the basis for a national diffusion plan. DEEP schools could either develop their own materials or adapt the national projects materials to local needs. Since the potential market for such a curriculum package would be great, commercial publishers would probably be quite interested in marketing (diffusing) it. Many of the Council's network components could be utilized in dissemination, i.e., summer workshops could train teachers to properly use the materials, teacher training institutions could introduce preservice teachers to the package, state councils could conduct awareness and leadership training workshops.

- The national curriculum strategy does, of course, pose some problems. It would probably require the profession to endorse a particular approach, but there is the option elected by biologists who developed several versions of the basic curriculum package. A unified curriculum approach would also make it less convenient for state councils and centers to go their own ways, but that would not be an insurmountable problem. A more touchy matter would be satisfying the widely divergent interests of the organizations which financially support council and center work at all levels. The dollar poor sociologists and geographers faced no such contributor rebellion.

- A move in the direction of a national curriculum assumes that none of the present economics programs, such as *Economics in Society*, represents an adequate answer to the development problem. If they do, a lot of time and money could be saved, and as indicated earlier, the diffusion of those materials is already underway.
- Continual efforts should be made to assist persons in linkage and advocate roles. Persons such as state social studies coordinators and assistant superintendents in charge of curriculum, face a massive "keep-up" problem. Ready-made inservice programs, highly selective bibliographies, and special refresher workshops would help these people improve economic education.
- When economics materials are promoted for local trial, characteristics which have been found to be of particular interest to adopters should be emphasized. For example, Hahn found it more important for a teacher to perceive that a given set of materials would result in greater student interest than it was for them to perceive that the materials were "like" something they had used before. The characteristics important to precollege teachers are probably different than characteristics, such as technical correctness or theoretical consistency, which concern college professors.

# # #

This paper has presented two different views of the situation confronting economic educators. In Part I the focus is on the broader context in which change occurs. Change is seen as the result of the many day-to-day decisions which together make up the climate for change in the schools. It also points out that many organizations and individuals have been at work in this field and future changes must take these previous efforts into account. Part 2 is concerned specifically with the diffusion of curriculum materials projects and local development efforts such as DEEP. Both efforts are a subgroup of the broader change picture described in Part 1.

Long range change is certainly more than having schools adopt a new set of materials or teachers complete another course in economics. Ultimately the nature of schools must be basically altered, but in the meantime many interim steps remain to be taken.

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A Response to "Needs for Diffusion and Implementation of Economic Education Programs"

Charles B. Myers

Analyzing the Becker-Marker assessment of diffusion efforts, this respondent suggests that the two authors, like others, have confused the diffusion of materials and information with the broader issue of producing change in people. While Myers considers dissemination of ideas and products important, he believes that a new focus in diffusion/implementation efforts is needed today. He suggests that efforts be directed toward developing change agents and change models. Among the author's recommendations for achieving this new direction are discontinuing old-style summer workshops which deal with economics content and concentrating efforts instead on helping teachers improve their teaching skills and their understanding of the teaching-learning process.

Early in their paper, Becker and Marker refer to the importance of correct definitions if appropriate solutions to problems in economic education are to be proposed. I would like to focus on this point because I believe we are not defining the problem (or problems) correctly. We are using different definitions of the word "diffusion," and we are confusing the idea of diffusion with the much broader idea of producing change in people, institutions, and programs. The Becker-Marker paper reflects both these points of confusion.

Using the term "diffusion" to mean informing teachers about the existence of certain economic education programs, projects, and materials and enabling teachers to obtain these materials, defines diffusion in a rather narrow sense. Although diffusion, even in this narrow sense, is a continuing problem,

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we make a mistake in limiting the idea this way. More than materials needs to be diffused. Teachers, administrators, and other educators need to be made aware of all types of new ideas concerning economic education. These people also need to be convinced that *they* can change, that they can provide instruction in economics. They need to be encouraged to implement the new ideas and to be helped in the implementation process.

A second identification problem is the confusion of dissemination efforts and change strategies. The strategies that would successfully bring about appropriate changes in economic education must be much more varied, longer-range, and more sophisticated than those used for disseminating new materials. Such efforts must focus less on materials and economic content than many past economic education efforts. Instead these newer efforts must focus on changing the people, primarily teachers, who will bring about improved instruction in economics at the elementary and secondary levels.

The Becker-Marker paper devotes significant space to describing changes that have occurred in the last few years. They point out that often solutions have been provided to situations that existed at one time but cease to exist by the time the solutions were effected. I think this point is particularly cogent.

In the past, efforts at improving economic education, including those sponsored by the Joint Council on Economic Education in its early days, focused on providing economic information to teachers, developing curriculum materials, and disseminating those materials. This approach was consistent with the foremost thinking in teacher education and curriculum development at that time.

Today, however, I believe the situation has changed. The problems involved in improving all kinds of instruction at the elementary and secondary levels require more than supplying additional content for teachers and writing new curriculum guides. Problems are also too complicated to be solved by short-term workshops on how to use new curriculum packages such as *Economics in Society*, although these efforts produce some positive effect and should not be discouraged.

I believe this group and the economic education groups we represent must now address a new, broader question, How can the practices of educators in the field and the institutions in which they teach be modified in ways which will enable them to produce students better educated in economics? We have materials that are relatively good. We have dissemination and communications networks that are at least somewhat successful. We do not have change agents or models for teacher and institutional change that are effective. Our major attempts at producing change have been diffusion of materials and summer teacher workshops stressing new economics information. These efforts were good, but they simply are not sufficient.

Leaders in economic education are not alone in their inability to produce significant change in education. Both preservice and inservice educators throughout the nation are proceeding by trial and error, and no highly successful model has been developed. There are, however, a number of ideas worth pursuing. The Becker-Marker paper refers to some of these, although I take exception to some of the finer points in the steps they suggest. My recommendations for future dissemination/implementation efforts are these.

- Maintain and improve the Joint Council on Economic Education communication network among those interested in improving economic education.
- Continue to provide assistance to local school systems in their efforts to improve instructional programs.
- Continue to disseminate good economic education programs of local school systems, social studies projects, and publishers.
- Shift the emphasis in efforts to improve economic education instruction from bettering teachers' economics content background toward helping teachers improve their teaching skills and their understanding of the teaching-learning process.
- Discontinue the old-style, short-term summer workshops that do little more than teach economics.
- Focus energy on changing teachers already in the classroom as well as preparing preservice teachers.

In short, I suggest we continue the diffusion/implementation activities that have been successful in the past but shift the emphasis from the "diffusion" of materials and economic content to the changing of teachers, instructional supervisors, and educational systems.

A Response to "Needs for Diffusion and Implementation of Economic Education Programs"

S. Stowell Symmes

While agreeing with Becker and Marker that there is a need for realism about the school climate and processes in diffusion and implementation efforts, this respondent takes issue with two areas of the authors' paper. First is Becker and Marker's equation of "curriculum innovations" with prepackaged products or strategies. The respondent contends this perception suggests that the thrust of curriculum change should be external to the school system, and he believes it should be internal. Second, Symmes disagrees with the Becker-Marker suggestion that local development leads to curriculum anarchy and suggests that effective diffusion must accept a dynamic role for the local school. The respondent concludes with comments on each Becker-Marker recommendation and adds some recommendations of his own.

My reactions to the Becker-Marker paper are personal and do not necessarily represent the views of the Joint Council. No formal staff consensus was taken prior to preparation.

After reading these conference proceedings, some skeptics might conclude that discussing diffusion and implementation of economic education programs is premature. Perhaps diffusion and implementation designs should be held in abeyance until the economics discipline is properly defined, valid curriculum materials for all students are developed, teachers are adequately prepared, and research on the many aspects of instructional theory has uncovered all there is to know about how to develop curriculum. After all, should not economic educators disseminate only fully valid products which can guarantee results?

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At first glance, this line of thought sounds reasonable. Actually, the view holds the seeds of educational inertia because it does not recognize that the process of curriculum development, which includes both diffusion and implementation, is itself an integral part of closing knowledge gaps. Furthermore, such a view implies that "the" economic education program could be designed and that the implementation task would then become only a matter of gaining wide adoption of "the" curriculum.

To adopt this approach would condemn the school as a viable institution, and we should not expect such neat, simplistic solutions. Schools should not, indeed they cannot, stand by awaiting the ideal economics curriculum with baited breath; they must play an active role in the curriculum development process itself. For these reasons, I strongly endorse Becker and Marker's view that diffusion and implementation should not be seen as " . . . efforts to get the public to buy more of a particular brand of soap, but as integral parts of efforts to improve school offerings in economic education."

REALISM IN DIFFUSION AND IMPLEMENTATION

Before addressing myself to Becker and Marker's recommendations, I should like to issue a general plea for realism in diffusion and implementation. Becker and Marker rightly describe the many serious and pseudoserious efforts to change economics curricula in the past and wonder why more has not been accomplished. Their answer is good. Despite the helpful efforts of the Joint Council on Economic Education, there continues to be fragmentation and duplication of programs, gaps in communication exist, and too many agencies and individuals are going their own uncoordinated, competitive ways.

However, it is important to be realistic about what can be accomplished in diffusion and implementation efforts since the curriculum change process should not be undertaken in an atmosphere of unrealistic expectations. Economic educators must first ask themselves, What can schools realistically expect to accomplish? There are limitations of time, function, and resources which must constrain expectations. Goodlad (1966) estimates that only seven to eight percent of all waking hours of 13- to 17-year-old students is spent in school as compared to nine percent spent watching television.

A second question to address is, What portion of formal schooling can economic educators reasonably expect to co-opt? The school system has been pressured to expand its functions far beyond its capacity to deliver. Schools are expected to "solve" social problems as diverse as drug addiction, premarital sex, employability, poverty, functional literacy, and mayhem on the highways. How much responsibility can we reasonably expect schools to accept for economic literacy?

Finally, economic educators must ask, How much resource input can economic educators reasonably expect schools to allocate to economic education programs? Curriculum developers must also become realistic about costs of materials, inservice education, and specialized consultant assistance. While money is not the key ingredient for effective curriculum development, resources—financial, human, and material—are scarce commodities for all school systems and resources must necessarily be reallocated to effect change.

Economic educators must adopt realistic diffusion models or be destined to failure. Perhaps the philosophical conviction that there is something positive each teacher can do every day, a conviction expressed by Aaron Gordon, Lawrence Senesh, and James Becker, is a point of departure. I call this a diffusion philosophy based on incrementalism—today we are more effective than yesterday. Curriculum development is nonlinear. While it is sometimes a rough, discontinuous process, it need not be consciously haphazard or unsystematic. Systematic planning must be at the center of any effective diffusion or implementation model. As Becker and Marker stated, ". . . if we continually focus upon improving the schools' capacity for self-renewal, we can work toward such a broad goal by taking thousands of small steps at the day-to-day decision level."

CURRICULUM INNOVATIONS AND LOCAL DEVELOPMENT

Thus far, I have underscored my agreement with the Becker and Marker paper. There are, however, two areas of the paper which compel me to quarrel with the authors. My apologies if these disagreements are due to misinterpretation, but I feel stongly that the issues should be brought out in the open.

First, by focusing on the diffusion steps outlined in the *Wingspread Handbook for Educational Change Agents* (Becker and Hahn 1975), the authors appear to equate "curriculum innovations" with prepackaged products or strategies to be diffused, adopted, and/or implemented. For example, steps 1 through 4 set the stage for adoption by asking the diffusor to know the product's characteristics and to identify where the innovation might best fit. Step 5, a plan of action, appears to emphasize modification of, or manipulation of, the school system so that "adoption" of the innovation is facilitated. This strategy suggests that the thrust of change is *external* to the school system. Thus the curriculum development process recommended by the *Wingspread Handbook* appears to emphasize modifying the school system to facilitate the diffusion of an externally developed innovation.

I believe that the thrust of change should be *internal* to school systems which actively seek to adopt innovations which accomplish a particular curriculum objective. The school system (by which I mean the total set of elements including students, teachers, administrators, parents) is not a passive institution to be manipulated by curriculum developers who have "tested" products "for sale." The school system should be perceived as a developmental organism which consciously seeks out educational products that can not only help it to survive but can also enable it to better perform its societal functions.

Curriculum diffusion strategies in economic education will fail unless curriculum is viewed as a developmental process derived from local school sytem needs. Curriculum development is a long-term, continuous process with materials selection being only one of the component parts. Furthermore, curriculum development should not be conceived as a "project" to be completed—signed, sealed, and delivered by "June 30."

To better understand the organism we call the school, continued research and development are both needed. We must have better knowledge about each component part—a microview. We must also have better knowledge about what is happening to the system as a whole, with special emphasis on the relationships between the parts—a macroview. Without such research and technical assistance, school systems may unintentionally be destroyed as viable institutions, much as many biological organisms have been eliminated from the physical world as a result of unintentional alien treatments.

The second basic disagreement I have is with Becker and Marker's statement that "local development leads all participants to do their 'own thing'." While there is always a possibility that local autonomy will lead to curriculum anarchy, to propose any other model runs far greater risks and probability of failure. I am not suggesting that every school write its own economic education textual materials. Our research on DEEP 1964-69 clearly demonstrated the failure of such expectations. What I am suggesting is that successful curriculum development requires participation by the local school.

Alfred North Whitehead in *The Aims of Education* wrote, "The first requisite for education reform is the school as a unit, with its approved curriculum based upon its own need, and evolved by its own staff. If we fail to secure that, we simply fall from one formalism into another . . ." (Whitehead 1967, p. 13). Whitehead was not preaching anarchy. He was saying that diffusion of innovation requires active participation by those involved in the local school. John Goodlad's research led him to conclude that, "The single school is the largest and the proper unit for educational change" (Goodlad 1975, p. 110). Furthermore, Goodlad found that oftentimes school reformers did not try "to understand the schools or to find out how those in schools perceived the problem or any problems" (Goodlad 1975, p. 111). James Banks has urged us at this conference to acknowledge the enormous diversity of schools and to build flexibility into our curriculum designs. In the same manner, our model for curriculum diffusion must be flexible and trust local initiative and resources.

Local curriculum development need not mean reduced intellectual or academic integrity. One crucial role of professional economic educators is to help schools select, adopt, and adapt economics materials that reflect the best knowledge we have of economic science. Scientific integrity is compatible with flexible local curriculum development. Even the Physical Sciences Study Committee found it ". . . could maintain its scientific integrity and still be tailored to relatively precise local educational needs. By doing well at its scientific business, the Committee had enabled school systems to do well at the educational business of curriculum development'' (Miles 1964, p. 265).

These bits and pieces of research and educational philosophy lead me to believe that effective diffusion models must accept a dynamic role for the local school. More research identifying the component parts of successful diffusion models will, of course, be necessary. The Joint Council's DEEP Cooperating Schools Program and John Goodlad's League of Cooperating Schools will provide researchers with superb starting points.

A RESPONSE TO THE BECKER-MARKER RECOMMENDATIONS

In summary, I should like to respond briefly to the five recommendations for research and development made by Becker and Marker.

One, I support the need to strengthen the Joint Council's network of Affiliated Councils and Centers. This network is potentially the most effective communications model for delivering the results of both research and development in economic education. In strengthening this network, the Joint Council must strive to move beyond its narrow economic education focus, allowing interface with other disciplines and other educational theorists. Presently the network is in danger of being a closed information system. For example, how many economic educators have been exposed to the PSSC physics research which found that having participants see a curriculum material in action was key to its adoption?

Two, I do not support the development of ''a national economics curriculum,'' but I do support the development of a national master curriculum guide. A national curriculum, if this means developing a set of courses in economics, will not solve our problem for all the reasons given by Becker and Marker. There are too many ''hidden hooks'' in this approach. A master curriculum guide, on the other hand, could give curriculum developers valuable assistance in developing a basic framework of economic understanding so that laymen and professional educators alike will clearly grasp what it means to be economically literate. It could also provide teachers a set of concept-oriented, classroom-tested lessons demonstrating at all grade levels how the key ideas in the framework could be taught. The Joint Council is currently working on such a document. It will not be a ''national curriculum'' but rather a flexible guide to help schools help themselves and to assist commercial publishers in their efforts to create relevant materials.

Three, I strongly endorse Becker and Marker's recommendation that continued specialized assistance be provided practioners in the schools. School curricula need constant maintenance or they, like good machines, will fall into disrepair. The fruits of action research and successful curriculum development strategies must continuously be brought to the front lines and made available to the schools. One by-product of locally developed curriculum is the constant development of new techniques which can be usefully shared if an effective communications network is established.

Four, I also emphatically support the request to emphasize helping schools increase their long-range potential to change, but this cannot be done at the expense of, nor in place of, local curriculum development. Local curriculum development is the resultant process of schools which have acquired the capacity to change. Economic educators need to learn more about the process of changing curriculum so that they can improve the capacity of school systems to absorb change (i.e. innovation) more effectively, more efficiently, and more humanely. We should seek the *optimal* change rather than the fastest, cheapest, or most change.

Five, Becker and Marker's last recommendation is to emphasize the characteristics of materials which are of particular interest to adopters when promoting the products for field trial. This recommendation is not of high priority with me except as part of the developmental curriculum process.

ADDITIONAL RECOMMENDATIONS

There are three additional recommendations for improving the process of diffusion in economic education which I would like to submit.

- A continuous upgrading of the quality of economic education technology is needed. Refinements of inservice course designs, more responsive measuring instruments to assess progress, and more effective teaching strategies are crucial. The science of curriculum development, like any science, is not static.
- The statement concerning the service function of Centers for Economic Education needs updating. If the concept of establishing a university center within 50 miles of every school district in the country is becoming realistic, it will be important to clarify the service relationships between the centers and the schools.
- Personnel responsible for managing economic education curriculum change in the schools need specialized training. Each school system requires a coordinator of economic education who has the skills and knowledge required to keep a local curriculum development program in operation.

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Part VI Conclusions and Recommendations

Teachers' Reflections on the Conference
Joyce H. Frank
Robert W. Reinke
Elizabeth Vander Putten

Conference Summary
Brian J. Larkin

Recommendations of Conference Participants

Reactions of a Teacher Participant to the Conference

Joyce H. Frank

Presenting her reactions to the conference, this participant suggests specific actions to improve economics education, particularly at the elementary school level. Because Frank believes inservice training is vital to improved economics instruction, she suggests that such training be made more relevant to the reality of the classroom, that inservice be inspired enough to make teachers want to teach economics, and that other classroom teachers more often be involved in inservice programs. Frank also warns theorists that their insistance on teaching only "pure" economics may result in no economic concepts being included in students' education.

The following recommendations are based on my observation of and participation in this conference.

MATERIALS EVALUATION

There should be some way to police or recommend economics materials. I was appalled to learn I could be teaching erroneous concepts. Grade teachers do not have the expertise to know whether materials are accurate. If an organization such as the Joint Council on Economic Education would evaluate materials, perhaps centers could make the information available to classroom teachers.

INSERVICE TRAINING

Some speakers at this conference condemned inservice workshops as ineffective and passé. I disagree strongly. Teachers need to continually upgrade their performance, and workshops tend to reinspire them. Also,

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grade teachers prefer workshops to courses because they are shorter and tend to be more activity centered. Except for preservice education, I believe inservice workshops are the only—or at least the most effective—method of assuring better precollege economics instruction. Preservice is more effective, but it will not do the job because there are not enough new teachers being hired to effectively implement economics in schools. Since this condition will probably not be alleviated in the near future, existing staff must be trained with inservice workshops.

Although inservice is essential, many current inservice programs do not meet the needs of precollege teachers. Grade teachers accept a child at the level they find him/her and provide instruction from that point. Economics workshops rarely do. Professors should learn from the teachers they are training in this respect. Workshops are often loaded with economics content which terrifies teachers; as a result they do not learn it. While valuable, economic theory may not be *necessary* at lower grade levels. It is important for inservice instructors to remember that a teacher cannot and does not need to become an economist in three weeks. I can teach the concepts a second-grade child needs to know about economics with a very elementary knowledge of the discipline. It is desirable for me to have a good background in economics, but it is more important that I am not afraid of it. If inservice instructors make teachers comfortable and reassure them, they will learn more easily. Teachers should first be taught what the grade student needs to know; then economic theory should be introduced. If teachers go no further than the first step, it is better than nothing.

Enrollment forms for workshops should include a questionnaire on the economic expertise of the participants so the instructor can plan the workshop to fit the participants rather than trying to make the participants fit the workshop. Participants might be grouped by experience with different assignments given to different groups and perhaps even different materials used with different groups.

The children's material can be used to teach inservice. Because student material is simpler and easier to understand, it can be used as a beginning and enlarged upon when concepts are clearly understood. Senesh materials, for instance, are extremely sophisticated; yet they teach clearly enough for a child to understand. I won a first place Kazanjian despite having never taken an economics course. I learned my economics from Senesh's second-grade materials as I taught them.

Teachers in inservice should be made aware that economics is a very broad area which they are probably teaching without realizing. For instance, limited supplies is an economic problem in most classrooms. Teachers need to realize that the decision making they teach in solving a limited supplies problem can be even more effectively taught as an opportunity-cost decision.

If the economics is to be taught, teachers must learn how to infuse it into all subjects. Grade teachers do not have time to teach it separately. Teachers need help in learning to infuse economic terms and concepts into daily vocabulary. "Limited means," "unlimited wants," "supply," "demand," "goods," "services," "consumer," and "producer" are terms I use daily in our classroom when referring to our activities.

Economics should be made fun and exciting in inservice workshops. Teachers have to do this in their classrooms or today's TV generation will turn off.

Inservice instructors should avoid economic professor jargon. Almost everything said at this conference could have been said in English which we would all have understood. I once heard the program I teach explained by an economist, and I could not understand it, much less teach it. Such presentations scare teachers away from teaching economics.

INFUSING ECONOMICS INTO CURRICULUM

Economic educators should not be such purists. If they insist that only "pure" economics be taught, they may eliminate all economic concepts from student instruction. Career education, personal economics, and consumer education are current, relevant, "in" now. Straight economics is not. Because school boards and government agencies will fund "in" programs, efforts should be directed toward getting economic theory infused into them.

IMPROVING COOPERATION BETWEEN CLASSROOM TEACHERS AND THEORISTS

There are basically two reasons precollege teachers do not teach economics: time and ignorance. Time can be overcome by infusion. Ignorance can be overcome only with interesting, reassuring inservice training.

Economics centers should send letters to superintendents offering to provide an afternoon inservice on economic awareness. In one afternoon teachers can hear enough about exciting economics projects to make them want to try some on their own or to take a summer workshop. Letters or bulletins do little to recruit people. With no economic awareness, teachers avoid economic workshops because they feel they will be dull and difficult. Economics need not be either. Let just one Kazanjian winner tell about her/his project, and teachers will all want to try something or take workshops. I have given about 70 career education/economics inservice sessions in the last two years using my Kazanjian project, and all participating districts have reported that many of their teachers are trying part of it.

The best way to overcome the problems of time and ignorance is to consult teachers. Do not look down on us. Classroom teachers are highly skilled craftspeople. We can be used not just as practitioners but also as consultants. We may not know much about GNP, but theorists do not know much about audio-closure. Theorists should not decide what to do with teachers (as participants have at this conference) without asking us! All three classroom teachers present feel our expertise has been ignored. When economics materials are prepared, developers should not assume they know how to teach because they went to school. Teachers should be consulted to determine if the materials are feasible.

Inservice instructors who were once precollege teachers should not assume they understand classroom problems. If instructors have not been in the classroom in the last two years, they do not know current teaching tensions, pressures, or problems. Inservice instructors should talk to good teachers to learn infusion methods. Teachers can explain how they teach economics in structural skills or language arts. Finally, classroom teachers should be used to inservice other teachers in precollege economics instruction.

The question of whether economics should be taught can be debated forever. But one fact remains. Economics will not be taught without the classroom teacher. Do not ignore us.

Why Are We Different?

Robert W. Reinke

Summarizing his view of the conference, this participant focuses on the knowledge and communication gaps between precollege classroom teachers and academic (college-level) economists and curriculum developers. Reinke suggests that while academics have more content knowledge, precollege teachers possess other capacities which are critical to the total education of students. He advocates more communication channels between academics and classroom teachers, particularly inservice training programs and greater classroom teacher input into professional journals.

It seems relatively easy for people of similar backgrounds and experiences to communicate with one another. Breakdown in interaction usually occurs when two or more groups or subgroups attempt to discuss an issue from varying perspectives. These perspectives may be quite similar; yet in-group jargon and bias build barriers which make productive interaction difficult or impossible.

A delineation of the differences between precollege school teachers and academic economists and curriculum developers may help lower some barriers and allow each group to reach the mutually acceptable goal of improved economic education by improving the understanding between various groups, providing insight into similarities, and increasing the ability of each group to follow the recommendations from a conference such as this.

A simple analysis of this conference's participant roster shows four precollege teachers in attendance. This relatively small number of public school personnel compared to the number of curriculum developers and economists indicates an attitude many academics (educators outside the precollege schools) have regarding the professionalism, enthusiasm, and abilities of precollege educators. I felt this "less than equal" or "you can

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listen but not speak" attitude early in the conference, but the attitude seemed to change measurably by the end of the meetings (certainly a great accomplishment).

A QUESTION OF ABILITY

The attitude of superiority among curriculum developers and economists is understandable. Obviously, the knowledge in curriculum and economics is qualitatively and quantitatively greater among academics than among precollege teachers. Academics have the opportunity to gather and read the most current literature in the respective fields; precollege teachers do not. This difference certainly widens the knowledge gap. Academics posses a cadre of "experts" who are constantly available for discussion and brainstorming. For the most part, teachers do not have this resource, and the gap widens further.

To stop the comparison of precollege teachers and academics at this point would support the superiority attitude of academics and do more harm than good. However, as many economists and curriculum developers present here now know, precollege teachers possess abilities which go beyond the discipline of pure economics and the field of "content" curriculum. Their abilities lie in a relatively undefined realm called "public school pedagogy." This arena has remained undefined because it is broad, changing, and localized. However, the capacities precollege teachers possess are important in educating the average American youngster. Some of these specialized capacities are the following:

(1) the ability to diagnose physical, mental, and emotional disabilities which hinder students' ability to learn;
(2) the ability to develop (with the assistance of support personnel) programs which help students and their families with particular disabilities;
(3) the flexibility to adapt one's curriculum and personality to cope with crisis conditions in the classroom;
(4) the ability to efficiently organize time schedules to meet stated objectives;
(5) the ability to incorporate skill and attitude instruction into the curriculum at the appropriate learning level;
(6) an awareness of basic concepts from many disciplines;
(7) the ability to write curriculum when such curriculum is unavailable but assessed as necessary for proper instruction;
(8) the clerical/secretarial skills necessary for maintaining daily records;
(9) the emotional maturity to interact with many human beings daily;
(10) the ability to forecast future events which might injure the physical health or disrupt the mental health of students;

(11) the ability to communicate with a variety of community members (students, parents, colleges, administrations, politicians); and
(12) the ability to revise existing curriculum to better fit student abilities and community needs.*

These capacities are certainly difficult to measure and have not been quantified. Perhaps a time study research design would support or reject my optimistic analysis of the precollege teacher group.

A NEED FOR ECONOMIC EDUCATION

Precollege teachers desire to be knowledgeable in many fields—particularly economics. Economics is the discipline about which many student and citizen questions pertain. Because economics is a behavioral science relevant to our daily lives, many people seek direction or clarification from the public school economics teacher. Obviously, trained teachers do not like to respond "I don't know" to such questions or to answer in such general terms that the truth seeker walks away confused and frustrated. Consequently, I support this conference's recommendation for more teacher inservice. In my opinion, this recommendation represents an effective way of improving the quality of economic education throughout society, for adults as well as precollege students.

However, a precautionary note is needed at this point. Like economists, curriculum developers, and others, teachers' behavior is influenced by available incentives. Therefore, appropriate pecuniary or psychic rewards should be provided inservice participants! There is an opportunity cost for teachers to attend a workshop just as there is an opportunity cost for the instructor. Poor attendance does not necessarily mean apathy. It may mean that the invited participants are receiving greater perceived rewards by electing to spend time elsewhere.

PRECOLLEGE TEACHING AS A PROFESSION

Many precollege teachers perceive their occupation as a profession and would like to communicate to other professionals through publication. Most economic education and social studies journals have been closed off from teachers. It has been my experience that manuscripts which do not employ statistical analyses or an idea representing the "cutting edge" of the discipline do not meet the editorial needs of the journal. I would recommend that the

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*It is unrealistic to assume that every, or even most, public school teachers have mastered all these capacities. It is realistic to assume, however, that a pool of public school teachers possesses these talents. I recommend this resource be utilized by any group wishing to improve the quality and quantity of learning within American public schools.

Journal of Economic Education designate a portion of its journal to writers who are full-time precollege teachers.

This recommendation utilizes the idea of learning levels—a topic at this conference. It has been suggested that students need curriculum materials which are at or slightly above their learning capacity to maximize their learning. This same theory applied to teachers implies that if precollege teachers read a professional journal containing some articles at their level of understanding and others above that level, they would make substantial gains in content acquisition. These content gains may begin to narrow the aforementioned ability gap between precollege teachers and academic economists and curriculum developers.

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My remarks were solicited by a majority of the conference participants during the final conference meeting. The recommendation for more input and opinion from the precollege teacher participants came from curriculum developers and economists. This request indicates how successful the conference was in improving communication between educational groups. If this understanding and respect continues, I predict substantial gains in economic education nationwide.

Reflections by a Social Studies Teacher on the Conference

Elizabeth Vander Putten

In reflecting on the conference, this participant examines needs in economic education from two perspectives: what teachers see as needs and what students see as needs. Among Vander Putten's suggestions for meeting teacher-perceived needs are to develop materials which have limited but realistic learning goals, to involve more teachers in inservice training, and to encourage more cooperation among classroom teachers and curriculum developers in the preparation of new material. To counteract the relatively negative view of economics held by high school students, Vander Putten suggests that materials focus on ideas which are new to students, that ideas be made relevant to students' lives, and that the discipline be "humanized."

As one presenter observed, we all view experiences from different perspectives. As a minority group member at this meeting, I am glad to share some of my perspectives with you. But as Professor Banks has said, no one member of a minority can speak for the whole group. To ask one Black American what Black Americans consider important about economics education would be misleading. To ask me what teachers think is equally misleading. I can only give you my personal viewpoint which is based on several years experience in teaching social studies at the secondary level. In commenting on the question of needs in economic education, I would like to focus on two aspects: what teachers see as needs and what students see as needs.

Many papers presented at this conference described fascinating new areas of research and research design. Answers to the questions raised by these papers will certainly improve the quality of curriculum development

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and teaching. However, by the time the questions are answered, I expect I will have retired. Teachers have a short-term view—what will I do today or tomorrow? Some combination of the long- and short-term views is necessary. Perhaps it would be good to bypass some of the really difficult questions raised at this conference for the moment (fudge a little on scientific rigor in the interest of action), and base future curricula development on what we already know about learning and the needs of teachers and students.

I suspect we all believe we are the important link in the educational chain. I know I am convinced that if you wish to bring about changes in economic teaching, you must bring about changes in teachers' attitudes, skills, and knowledge. To do this, you must provide an incentive for teachers, and the best incentive for most teachers is materials which excite kids. If you can provide me with materials that "turn on" kids—that get them to say "wow" or even "that wasn't such a bad lesson"—I will buy anything you have, even if I have to do it at my own expense.

Unfortunately, materials do not generally excite kids. Teachers do. Therefore you must reach the teachers. Preservice training does not seem to be the answer. The total number of elementary school teachers in this country declined last year. New York City has "excessed" all social studies teachers hired after 1972. If they rehire any teachers, it will be from this group. The only reason school districts will hire new graduates this year (if they happen to have a rare opening) is that superintendents have studied economics and know new teachers are cheaper.

Two traditional ways of involving teachers in inservice training are requiring them to attend as a condition of employment or giving them credit for a salary increment. Unionization has pretty well ended the first. Longevity, brought about by reduced new hirings and tenure, has limited the viability of the second. Many teachers at our school are already at the top of the scale, and it is extremely unlikely that the Board of Education will create new steps.

Appealing to the teachers' professionalism may be one partial answer. For example, many NSF workshops have trained teachers not only to teach new materials but to train other teachers in the materials' use. Perhaps we could do a "quick and dirty" study to see how these new "teacher training" teams are working. On a personal level, I know these workshop programs have many positive changes in many of the originally trained teachers. I am a more excited high school teacher for having taught teachers in one of the institutes last summer. The enthusiasm and sense of pride I feel after giving a seminar or speaking at a meeting like this increase my determination to make my classes work. Teachers who are training other teachers also have a little more credibility than some college professors or curriculum developers.

Another way of appealing to teachers' sense of professionalism is to have them participate in the planning and conceptualization of new programs. Teachers who have an input into curricula development should have a greater commitment to teaching those materials. I am not suggesting that teachers are the only ones who should develop curricula. At my school we have had several summer curriculum projects, and I have written several. I would not want to have these compared to the national social studies projects in terms of carefully developed materials, clear objectives, and variety of approaches. And yet, I know they are good because I wrote them, and because I wrote them, I will make the project work in my class.

The danger inherent in this approach is the lack of an objective standard. Some teacher-prepared projects are terrible because teachers fall too quickly into the syndrome of getting something for Monday's class. We are not experts in developing filmstrips, writing at a particular grade level, or doing research. But teachers know what kids can understand and want. I support an integral working relationship between curricula developers, college teachers, and even students as one way of meeting needs in economic education.

We might not want to develop national projects. Some modification of the DEEP idea seems good. We could fund teams within districts to work with partially developed curricula. Although this might not produce the highest quality material, it might produce that beautiful combination of good materials and interested teachers.

Time is a major factor in getting teachers to change and develop. I teach three different subjects, psychology, anthropology and economics. I majored in American history. There is no way that I can be an expert in all these fields or even do adequate outside reading in them. That is why I am so grateful to Sue Helburn and her *Economics in Society* materials. I do not know what the "Phillip's curve" is and have been somewhat intimidated by all the talk about its modifications at this meeting. But I will know about it when I get to it in the student's book of the *EIS* program. I make no pretense of knowing much beyond the book. If I can explain just the ideas in the materials to the kids, they will know a lot about economics. I would support what Sue and others have said. Develop materials that are reasonable and accurately show the state of the art of economics today, and let the materials teach the teachers.

This raises another question. To what extent must precollege materials reflect the cutting edge of economic theory? If they are conceptually organized and reflect a major modification of earlier work, then the newest theories and developments should be present. Because textbooks must be used for so long, they should at least be up-to-date when written. However, if a new idea represents only a finer honing of an older idea or if it is still very controversial, I do not think it should be in new precollege materials.

I would also suggest that future materials be developed in an inquiry framework. Since the purpose of this method is to develop the ability of students to draw conclusions from data without getting bogged down in facts, developers must carefully select a limited amount of material for the students. It seems to me if developers cannot explain the important elements of a concept in one or two pages, they do not understand the concept. I was at an energy educators meeting recently and made that statement. A man from the Rural Electrification Bureau strongly disagreed with me. He likened my comment to a teacher who asked him why we used one particular type of corn rather than another. He said it would take a book to answer that question. I am sure the teacher was not that interested, and I know I am not. Even if I were, the kids would not be.

I am amazed and a little saddened to hear all the discussion about what major concepts should be taught. We must all remember that we are not sitting at a graduate seminar discussing the needs of doctoral students. We are teaching precollege students who by and large will remain laypersons in terms of economics. Surely developers can agree on five or six major concepts students must learn. If there is a disagreement about the next five or six, they should all be included. Teachers will make the choice if they run out of time.

I find it more difficult to comment on what students want from economics education. Before coming to this conference I very unscientifically polled my two eleventh-grade economics classes. Of the 50 students, only four had signed up to take an economics elective in the twelfth grade. Since we had just started economics, I don't think this significantly reflects on my teaching. When I pressed them for their reasons, I got contradictory responses. "Economics is too hard." "It's too easy." "We don't like economics." "We don't know what economics is." "Economics doesn't have anything to do with people." "Economics is boring." But everything is boring to students. How do we make economics appealing to them?

I think one of the best ways to start is to discard, or at least radically alter, some of our educational myths. The first is relevance. The one subject the kids in my class agreed they would like to study was banking. They were somewhat fascinated by the idea that banks make money. Examining this idea, we may learn some things about kids' perception of learning. They like to study new ideas. Although they know about banks, money creation is a new idea to them. I know I am refining and developing the concepts they already have, but they do not know it.

Sometimes ideas which directly touch the kids' interests may do so too directly. In one class we studied two units, one on adolescence and the other on old age. I originally assumed the first unit would motivate study of the second. I was wrong. We could study the same concepts (the questions of identity, transitions, the relation of the individual to the social setting) in either area, but old age was a newer topic and one less highly charged with raw emotions. The students may feel more comfortable talking about something which does not seem to "be" them.

It is difficult to delineate the implications of this observation for economic education. We can teach the kids the problems and impact of unemployment or of transfer payments. But a discussion of welfare in a class having many kids whose families are on welfare may very well fail. It might be better to study social security or political appointee jobs.

Perhaps what we have to do is help the kids see the economic relevance of particular problems they have. When New York State was considering building a bridge from Long Island to Connecticut, students in my upper-income district on the North Shore were very interested. They knew this would effect their sailing. I think they would have been interested in having the tools to meaningfully analyze the impact of this bridge on their lives.

We must be careful in economics to prepare materials which neither talk down to the students nor demand reading and comprehension levels which are too difficult. Someone suggested that high school seniors are capable of doing college work; after all, magic does not happen over the summer. Maybe not, but students do change. Perhaps because students pay for college or perhaps because of the college atmosphere, students seem willing to do much more work as freshmen at college than as seniors in high school.

We teach college-level courses at our high school. I am not sure they work out very well. In college when a paper is due, students cut class. If high school students do the same cost analysis of their time and cut class, they get detention. If we expect kids to do college-level work, we must change some of the structure of the high school. High schools are not colleges, and for the vast majority of high school students the level of work required of college students is inappropriate.

At the same time, we must not talk down to high school kids. I am sure kids can read materials above their tested reading level. There have been complaints that the *Economics in Society* material is too difficult. The students in my school, which is admittedly not in a disadvantaged area, do not think so. For some kids, tests are a bore. They know if they score poorly, we might expect less. What matters is that materials are interesting. To some extent, I think we can talk above the students' tested level and make them understand the material. The most dangerous thing we can do is put in material we think is cute. Print that is too big is a turn off. Kids appear to be super sensitive to "put downs."

What I am calling for is a realistic appraisal of where students are and an attempt to bring them to a new level. We must challenge without overwhelming. We also have to deal with the fact that classes have kids of all different interest and ability levels. As a teacher I think I am in the best position to work out with the kids what they need to know and how they want to learn it. I would suggest that all funded projects contain a variety of materials and methods. Teachers do not have time to develop their own materials, but they can select and adapt materials.

In conclusion, I would like to reiterate some of the comments made by students in my class. They want to take electives in sociology or psychology. They do not want to take courses in economics because economics has nothing to do with people. Let us humanize the field.

Conference Summary

Brian J. Larkin

In a concluding overview of the conference proceedings, Larkin reviews the relationship between economics and the social studies, summarizes the conclusions of presentors and discussants, and highlights the major recommendations advanced by conference participants.

ECONOMICS AND THE SOCIAL STUDIES

The social studies classroom is where the majority of students learn most of the economics they know. Separate and distinct courses in economics are the exception at the precollege level. Rather economics is interwoven into courses such as American history, area studies, and problems courses.

Economics' placement in precollege curriculum makes it important to keep in mind the relationship and difference between social studies and social science disciplines, including economics. Social studies is the study of human beings and their relationships to society. It aims to enhance human dignity through learning, develop rational thinking processes, and educate for citizenship. Social sciences, on the other hand, aim at the generation of new knowledge and the search for truth. Social studies utilizes the knowledge generated by the social sciences, and to a lesser extent that of the humanities and sciences, as a means to its own ends.

The precollege social studies classroom is the single organized, formal, institutional structure wherein the formal, systematic teaching of economics occurs, if it occurs at all. Economic education is, as Becker and Marker suggest, part of a general citizenship education program or else it is pretty much a lone wolf.

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A SUMMARY OF CONFERENCE CONCLUSIONS

The following is a summary of conference conclusions organized by the major topics explored by participants during conference sessions.

The State of Economic Science and Economic Education Needs

The cutting edge of economic theory remains far removed from the precollege classroom. To reduce this traditional "culture lag," educators need help in translating new economic ideas and theories into forms understandable to children. Tools and techniques are needed to make such translations relevant to both teachers and students. Curriculum developers need the insights of the theorists, and theorists need the insights of educators. Together, they need to experiment with organizing economic education materials around different patterns, such as topics, policy-oriented problems, or major economic concepts.

A second general concern is the somewhat artificial dichotomy between "rigor" and "relevance." One argument suggests that the major weaknesses in current economic education is its lack of careful attention to the rigorous study of the powerful analytic tools used by professional economists. It is claimed that descriptive economics will help students better understand economic phenomena but will not develop the rigorous analytic ability necessary to help them become rational decision makers. The counter argument contends that if economics is not related to the real life of the students, they are simply not going to be interested in it and are not going to learn much. As one teacher suggested, students think economics deals with things and systems, not with people, and students are interested in people. The problem of "rigor versus relevance" remains unresolved.

Finally, there appears to be a serious omission in both economic theory and economic education materials of consideration of the role of institutions in economic behavior. This omission suggests that curriculum developers and teachers need to place greater emphasis on institutional behavior.

Economic Literacy Needs

One of the most profound problems identified by conference participants was the need to view economic illiteracy as part of an increasing general illiteracy. Scholars in other disciplines have also noted this phenomenon. For example, humanities scholars have called attention to what they call the "new illiteracy," a situation in which students learn the fundamentals of reading but do not learn what is worth reading. In the fields of science and social problems, experts are calling attention to "energy literacy" and "environmental literacy."

In some measure, these literacy problems undoubtedly reflect the "knowledge explosion"; to remain functionally literate, today's students need to know much more than earlier students. Conference participants suggested that while there had been little improvement in economic understanding, the occurance of any improvement should be viewed positively. What would economic literacy be like if the efforts at improvement had not been made? It may be that economic education has the same problem as Alice in Wonderland who had to run faster and faster just to stay in the same place.

Another interesting problem, and one of considerable importance, is the unknown cost of economic literacy. What are the opportunity costs of economic literacy? What are the educational trade-offs students must make for economic education? Given a finite time resource, if students spend more time on economics, what other aspect of their education will be neglected? What is the value of another increment of economic education compared to the value of what is sacrificed?

In general, there is a need for accountability which includes developing alternative measures of economic literacy. Similarly, there is a need for different kinds of instruments to measure achievement and to diagnose learning problems. There is also a need for different types of tests which accomodate ethnically and/or culturally different groups. In short, there is an immediate and paramount need for alternative definitions of economic literacy and/or understandings and for the development of different types of instruments by which to measure achievement and to diagnose problems.

Research Needs

From both Dawson's review of research literature and Soper's paper on evaluation, a number of problems emerged. One series of problems concerns the type, level, rigor, and sophistication of the research which has been and is being done. Another kind of problem concerns subject matter which might be fruitful to research.

Specifically, participants suggested that research is needed in six areas including the economic background and education of teachers, the extent of economic teaching at all levels, and the types of economic education which occur. Participants also agreed that we need to know why reading levels, I.Q., and socioeconomic status are such important variables in economic learning. Is it because of the nature of the discipline itself? Is it because the discipline is conceptually structured and thus involves a high level of conceptual ability? Is it because economic instruction depends on written material which requires students to have a high level of reading ability? Or might it be that testing depends on reading ability? Do economics tests measure economic knowledge or reading ability or maybe cultural understandings? Are there testing alternatives?

There is a need to reexamine learning models. Many curriculum writers base their work on a learning model, advanced more than a half century ago, which suggests that students learn best by moving from themselves, to their neighborhoods, to their communities, and outward in widening concentric circles to the whole world. Other learning models have been suggested:

for example, there is a learning model which suggests children might learn best by moving from the simple to the more complex. Other models would have students move from hard data to theory rather than the more usual pattern in which students learn theory first and then learn to use, manipulate, and analyze data.

There is a need to determine what type of economic education material is best suited for teachers. One teacher observed that she learned her economics from the teacher's guide accompanying a textbook series. This suggests that at least one appropriate method of teacher training would be to teach teachers by using the materials which they, in turn, will use with their students.

Finally, there is a need to determine the most appropriate organizational structures for economic education material. Should we teach the structure of the discipline? current events topics? public policy problems and analysis? Or should we try new organizational patterns?

Economic Education and Multicultural Needs

The primary multicultural problem identified during the conference concerns the unique characteristics and culturally produced perceptions which lead to special needs of different ethnic groups, particularly minority ethnic groups. The following needs seemed particularly important: (1) the need to know the relationship between learning and socioeconomic class; (2) the need to know the special viewpoints as well as the attitudes, values, beliefs, and understandings of different ethnic groups; and (3) the need for better curricular materials which address issues relevant to these groups.

There is a need to teach the economic skills necessary to survive and flourish in a bicultural society. We need to explore the relationship between ethnicity and learning style as well as the relationship between ethnicity and teaching style.

Finally, we need to know what we mean by "gifted." Why are the "gifted" gifted? Is it inherent? operational? Are they gifted because they can do what educators want them to do in the ways educators want them to do it, using tools educators want them to use?

Economic Education Materials Needs

The major problems of economic education materials, as perceived by conference participants, seemed to center around reading level, grade level shortages, subject/topic coverage, interest, and adequacy of analytic as opposed to descriptive treatment. Among the extraordinarily large number of material development needs identified at the conference, the following appear most critical.

First is the need to develop more material for middle school grades; this need is based on Davis' finding that less material exists here than at other levels and Dawson's finding which suggests that children learn more economics as they grow older. Consequently, the best allocation of scarce resources would seem to be at the junior high rather than the elementary level.

Second is the need for greater vertical articulation and integration among materials. This correlates with the need to base development work on past experiences.

There is a need for research to evaluate the impact of materials in different situations and time periods. We need to discover incentives for teachers to be risk-takers and to participate in a continuous process of curriculum development and adaptation.

We need to develop materials at reading levels appropriate to the children who will use them, regardless of the children's grade level. In a related way, we need to develop alternative types of economic education materials suitable for different communities and students in different regions of the country. The impact of alternative materials should be through carefully designed field testing.

Finally, there is a need for materials dealing with content areas presently inadequately covered; these areas include U.S. income distribution; assumptions and values underlying the U.S. economic system; third world economics; economic discrimination; the economic power of labor unions, large firms, conglomerates, and multinationals; regulatory agencies; other economic systems and ways of thinking about resource allocation; current policy issues regarding inflation and unemployment; and the power or lack of power of the individual operating in the economy.

Teacher Education Needs

It is fairly well established that teachers tend to teach the way they were taught, using materials with which they are familiar, in ways with which they are comfortable. Thus, the improvement of economics teaching at the precollege level must focus on three areas. First, we need to find what type of material is most suitable for improving the teacher's knowledge of economics content. Next we need to provide inservice teacher education programs based on cooperation and integration between economists and educators. Third, we need to provide incentives and reinforcements to teachers undertaking economic education.

In inservice economic education we need to develop more cooperative working relationships between the economist and the teacher-educator. Ways to improve the economic understanding of the social studies method teachers should be found. Related to this is the need to integrate economic education with other social science teacher education, as well as to integrate economic analysis, policy oriented studies, and value analysis into both undergraduate and inservice teacher education programs.

Finally, we need to find ways of periodically reinforcing and updating teachers and to provide in both inservice and preservice programs basic economic tools such as mathematics and statistics.

Diffusion Needs

Although I have already discussed nearly all the problems associated with diffusion, one problem does seem both unique and significant. This is the problem of finding ways to get school systems to want to procure new and innovative economic education teaching materials. Participants suggested that the present delivery system, composed largely of private publishing companies, is probably as adequate as anything they could envision. However, the problem of consumer desire is another issue. In many respects it reflects the more general economic literacy problem of demand rather than supply.

The primary diffusion need is to create an effective demand for improved and innovative curricular materials. Two proposals were suggested. First, a program of inservice teacher workshops which employs the "multiplier-effect" should be developed. In these workshops economists and educators work with teachers to improve their content knowledge, pedagogical techniques and curriculum development skills. These teachers would, in turn, be expected to pass on to other teachers knowledge and skills through local inservice workshops. Second, a better, more rapid, more comprehensive system of providing evaluations of new economics materials to teachers, supervisors, department chairpeople, and other curriculum decision makers should be developed.

A SUMMARY OF CONFERENCE RECOMMENDATIONS

The following recommendations represent the major suggestions of participants in the various aspects of economic education discussed during the conference.

Literacy Recommendations

Alternative definitions and measures of economic literacy and understandings should be developed as soon as possible.

Materials Development Recommendations

Materials development projects receiving funding should be aimed at the middle school grades and should be based on close cooperation among the economic scholars, precollege teachers, and curriculum developers. Development projects should include materials development, teacher training, and evaluation components.

Several different curriculum projects should be funded. Students, parents, and school districts need more, not fewer, viable choices. Materials and programs suitable for one community or region may be less suitable for another. Material suitable for some students may be less suitable for others.

Materials should also reflect different organizational patterns, aim at different learning styles and interest, and depend less on reading proficiency than current materials. All projects should strive to be interdisciplinary. Teachers should be involved in all developmental work.

Research Recommendations

Following the development of acceptable statements of economic literacy within a framework of citizenship education, appropriate and alternative measurement instruments should be developed to determine individual achievement, indicate needed diagnostic and remedial activities, and assess general improvement over time. Surveys and case studies should be undertaken to determine the background and education of teachers as well as the type and extent of their economic education. Research should be implemented to determine what types of materials will improve economic understanding by minority ethnic group students whose cultural traditions may make their perceptions, achievements, and/or learning styles special. Research to determine the most effective type of material for teacher training programs is needed. A comprehensive assessment of all economic education materials should be made and results reported to the public.

Teacher Training Recommendations

A program of teacher education workshops, incorporating the "multiplier-effect" and involving the professional economist and pedagogue, should be implemented. Support should be given to locally sponsored, planned, and directed inservice teacher training programs which stimulate close cooperation between professional educators and professional economists.

Conference Participant Recommendations for Precollege Economic Education

The National Conference on Needed Research and Development in Precollege Economic Education addressed two major questions:

> Is there sufficient and adequate research information available to guide precollege economic education development? If not, what areas should be investigated more completely?
>
> Is there sufficient and adequate curriculum material available to meet the needs of precollege economic education? If not, what type should be developed?

The general conclusion of the conference was that precollege economic education could benefit from increased research and development efforts. At present the field is developing a base of useful research information and curriculum materials, but much more work needs to be done. Current efforts are fragmentary, uncoordinated, and suffer from a lack of resources in all development and research areas. These problems could be lessened if major efforts were undertaken to improve precollege economic education.

Throughout the conference, presentors of major papers, respondents, and discussion group participants made recommendations for improving economic education at the precollege level. In Part I we summarized what we as conference directors felt were the six major recommendations emerging from the conference. In this section we present a more detailed listing of the scores of recommendations from which our six summary recommendations were drawn. While the following list may not include every suggestion put forward during the conference, it represents the most comprehensive list we were able to reconstruct. Recommendations are organized under the broad categories of "research" and "program development."

RESEARCH

Economic Literacy and Knowledge

1. Economic literacy should be clearly defined in an operational, criterion-referenced manner.

2. Factors that contribute to or correlate with low levels of economic understanding should be investigated. Among these factors are home environment, neighborhood, parental knowledge, school curricula, reading level, IQ, personal interest, socioeconomic status, writing ability, and general literacy.

3. The role which economic education can play in strengthening basic educational skills like reading and writing should be investigated.

Measures of Economic Literacy

4. Measures of economic understanding are needed at all grade levels. Those that exist should be updated and improved.

5. Investigators must develop programs to determine long-range impacts of economic education programs. These should give close attention to student attitudes, content knowledge, ethics, and skills.

6. National assessment tests should include more economic content so these tests can be used to measure the impact of economic education programs.

7. National norming information should be collected on standardized tests with breakdowns by age, sex, academic ability, reading levels, socioeconomic background, and geographic area.

How Children Learn

8. Research should be undertaken to explore what forces influence the development of children's economic images. How does social interaction with family, school, peer groups, work groups, and exposure to mass media correlate with the development of an individual's beliefs, attitudes, images, and values about the economy?

9. Research should be conducted to find out how children learn about economic behavior.

10. Research efforts should investigate how economic concepts can be presented to coincide with children's stages of cognitive development. All new curriculum projects should make a more realistic appraisal of children's levels of conceptualization.

11. Research efforts should seek to determine at what age level particular economic concepts can be learned with optimal efficiency.

Demand for Economic Education Materials

12. Surveys should be conducted to measure the relative interest of students, teachers, administrators, parents, and school boards in having a strong economic education component in school curricula.

13. Surveys should be conducted to find out the extent to which economics is now being taught at all precollege levels.

14. Curriculum decision makers should be surveyed to determine the most important reasons for adoption decisions on economic education materials.

15. The opportunity costs for schools installing economic education programs should be identified. What, if anything, must be given up to include economic education in the curriculum?

16. Surveys of school and community environment should be conducted to find out why currently available economic education materials are not being used. These might include factors such as teacher unionism, dropping student enrollments, and lower teacher mobility and turnover.

Teacher Preparation and Knowledge

17. The economic background and education of teachers should be surveyed.

18. Research exploring the socialization of teachers should be conducted to determine what training experiences result in high professional commitment to teaching economics.

19. Research should be conducted to investigate the influence of teachers' knowledge of economics on student understanding of the subject.

Program Assessment and Evaluation

20. Economic educators should design careful evaluation procedures as an important part of any curriculum project.

21. Any statistical analysis of research data should use the multiple linear regression analysis form unless substantial justification exists for a departure from the regression model.

22. A variety of evaluation instruments such as observation techniques, essay instruments, and responses to incomplete statements, should be used to complement written tests for evaluating student performance in economic education curriculum programs.

23. Instruments to measure different educational objectives should be included in new curricular projects. These instruments should diagnose, record on-going performance, and provide feedback to learners in addition to measuring end-of-program achievement.

24. A precollege economic education test bank should be developed.

25. Cost-benefit analyses should be conducted to test the impact of different approaches, methods, and materials used to teach economic education.

26. Research should be conducted to measure presently untested variables such as the impact of effort intensity (quantity and quality of student and teacher action in the learning process).

27. Ongoing evaluations of K-12 social studies materials, secondary economics textbooks, and business education materials should be made to determine the strengths and weaknesses of these materials.

Miscellaneous

28. Greater incentives (professional, personal, and monetary) should be given economic education researchers.

29. Researchers should investigate sex and ethnic bias in economic education tests, materials, and teaching strategies.

30. Researchers should investigate the cumulative experience of students in applying economic analysis.

PROGRAM DEVELOPMENT

Curriculum Development and Evaluation

31. Serious consideration should be given to developing a national model economic curriculum which could be adapted to meet local needs.

32. A series of modest curriculum projects should be undertaken in the next few years. Among the content areas which have not been given sufficient attention and could be profitably included in new curriculum are the following:

    a. Analysis of patterns of and reasons for U.S. income distribution.

    b. Analysis of assumptions and values underlying the U.S. economic system.

    c. Analysis of third world economics vis-à-vis developed economies.

    d. Problems related to economic discrimination against women and ethnic groups.

    e. Problems related to economic power of large institutions such as labor unions, large firms, conglomerates, and multinationals.

    f. Problems related to the role of regulatory agencies.

   g. Analysis of other economic systems.

   h. Problems and controversy within economics about current policy issues such as inflation and unemployment.

   i. Problems related to the power or lack of power of the individual actions operating in the economy.

33. Materials should be developed that are appropriate for 12- to 15-year-old students, since little economic education material is available for this age group.

34. New curriculum developments in economic education should:

    a. Be interdisciplinary.

    b. Involve multiethnic characteristics.

    c. Deal with ethical dimensions or inquiry into values.

    d. Complement general citizenship goals of education.

35. Great value should be given to the crucial role of varied educational experiences in building a sufficiently elaborate image of concepts and generalizations to enable individuals to effectively participate in economic decision making.

36. Pedagogical characteristics of senior high school materials should be improved by:

    a. Developing and testing audiovisual materials that can be used flexibly in a variety of learning situations.

    b. Developing and testing simulations that are less complex than those currently available.

    c. Developing and testing short curriculum units, perhaps dealing with current economic problems, which actively engage students in the learning process.

37. More attention should be given to individualized learning activities in newly developed curriculum materials.

38. New programs should be developed to involve gifted students in activities requiring them to identify hypotheses and empirically test them.

39. Materials need to be developed with reading levels appropriate to the children who will use them.

40. New economic education materials should be designed to integrate economic content into existing precollege curricula.

41. Supplementary economic education materials which provide a variety of learning experiences about economics should be designed.

42. Extensive revisions of available economic education materials should be carried out to improve their pedagogical components, their usefulness to ethnic minorities, and their classification of value considerations in economic decision making.

43. Any newly developed materials in economic education should follow the guidelines in the Joint Council on Economic Education's Master Curriculum Guide Program, the National Council for the Social Studies Curriculum Guidelines, and the curriculum work of Lawrence Senesh, Suzanne Helburn, and Hilda Taba.

44. Any newly developed materials should be carefully field-tested under controlled conditions, and the test results should be made available to users and potential users of the materials.

45. Economic educators should design and conduct careful evaluation procedures as an important part of any curriculum project.

46. Evaluation instruments with greater specificity should be used to evaluate new economic education materials. The Curriculum Materials Analysis System developed by the Social Science Education Consortium could serve as an appropriate model.

47. Professionals not previously involved in economic education curriculum development should be sought and involved in any new projects to provide fresh ideas and approaches.

48. In any curriculum development work, greater cooperation between the Joint Council on Economic Education, the American Economic Association, the Social Science Education Consortium, and the National Council for the Social Studies should be developed.

Preservice and Inservice Teacher Economic Education Training

49. Inservice teacher training programs in economic education should be expanded.

50. Inservice teacher education programs should be conducted cooperatively with economists and educators using excellent examples of economic education materials.

51. Inservice training programs should cease to be repair shops of defective teacher training programs and concentrate on giving new directions and growth to established teachers.

52. Teachers should be given special inservice training with new economic education materials to maximize the impact of those materials on student learning.

53. Teacher education programs based on achieving specifically identified teacher competencies should be developed.

54. All teacher training programs should model in their own training those principles of teaching and learning they seek to transmit.

55. All inservice and preservice teacher training programs should be systematically analyzed and the results given widespread dissemination.

56. Programs should be held to improve the economic understanding of college social studies methods teachers.

57. More cooperative working relationships should be developed between economists and teacher trainers in undergraduate economic education.

58. Each state should review and propose minimal certification and graduation requirements for teacher education in economics.

Implementation of Economic Education Curricula

59. Diffusion organizations like the Joint Council on Economic Education should concentrate their implementation programs in "early-adopter" school districts and schools. These "lighthouse" schools will lead middle- and late-adopter schools in implementing economic education programs.

60. Great effort should be made to develop and assist people playing linkage and advocate roles in curriculum development and implementation. Special training and informational meetings regarding economic education materials might be conducted with school district curriculum coordinators, assistant superintendents for curriculum, and state social studies coordinators.

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